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No. XX. OF VOL. I., 1931. LONDON, SATURDAY, MAY 16, 1931 Pp. 128—Price 1s.

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ASSOCIATE PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, LONDON.

LECTURE III.

We may now consider definite diseases involving the essential structures of the spleen, following the classification which I have suggested.

Infections, Acute, Granulomatous, and Parasitic.

These require no more than mention to bring them into line with other groups in the classification. Acute splenic tumour has already been referred to, while the chief granulomas affecting the spleen are tubercle and syphilis. Echinococcus (hydatid) is the only important parasitic infection, unless aspergillus infection, subsequently discussed, should be included.

Diseases Affecting the Myeloid and Lymphatic Structures.

Myeloid metaplasia is, I believe, a throw-back to the original function of the fœtal spleen as a blood-forming organ. It occurs in a variety of diseases, such as pernicious (Addisonian) anæmia and von Jaksch anæmia, and splenic enlargement, sometimes considerable, ensues. The leukæmias, acute and chronic, myeloid and lymphatic, also involve these structures, but need no more than mention here. In the chronic varieties the splenomegaly may be enormous. There is one case in my experience, which I have already referred to elsewhere, but in which the results of splenectomy were so remarkable that I should like to record it again.

The patient was a woman, aged 66 years, first seen by me in May, 1926, when she was emaciated and obviously dying from a disease classified by the blood picture as chronic aleukæmic leukæmia. The blood count numbered 5400 to 6500 leucocytes, of which 78–82 per cent. were lymphocytes. Splenectomy was successfully carried out at the Royal Northern Hospital by Mr. L. E. Barrington-Ward on July 2nd, 1926. The spleen was enormous, weighing nearly 3000 g., and sections of it, which have been shown to several very prominent pathologists, have always been described as showing the characteristic changes of leukæmia. Following the operation, the woman made a remarkable recovery, has put on several stones in weight, and is still alive and in good health four and a half years after the operation.

It may at first sight seem curious that I do not include the cases of chronic hæmolytic (acholuric) jaundice in this group, but I am satisfied that, so far as the spleen is concerned, it is the reticulo-endothelial phagocytic cells which are active in this disease. It is more difficult to know where to include the spleens from cases of thrombocytopenic purpura, a disease which, as is now well known, may only be curable in desperate cases by splenectomy. I have examined the spleens removed by operation from four cases of this kind, but in none of them could the histological structure of the spleen be described as in any way abnormal. A further point of some clinical interest, and one not always remembered, is that in none of these four cases was the organ enlarged above the normal.

Apart from the lymphatic leukæmias, there would appear to be no special disease in which the lymphatic structures (Malpighian bodies) of the spleen are essentially involved. A possible exception is one of the types of primary sarcoma of the spleen, but this is referred to subsequently.

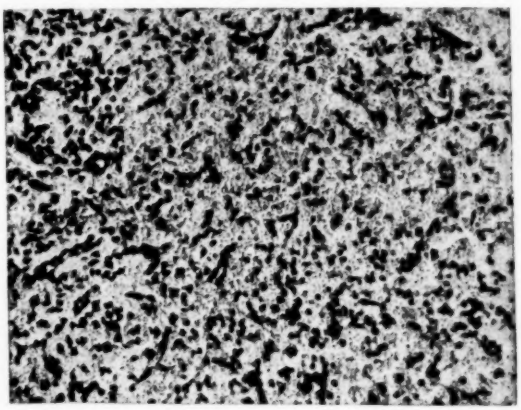
Diseases Affecting the Endothelial Elements (Reticulo-Endothelial System).

This is a most important group, which includes a considerable proportion of the splenomegalies of unknown and uncertain origin. In my previous tentative grouping I included these cases as "reticulo-endotheliosis" of the spleen, and divided them as follows:—

(1) Slight (? chronic infections), and marked.
(2) Lipoidal group—diabetes, &c.
(3) Gaucher-Pick-Niemann group.
(4) Tumours.

I now wish to modify and amplify this early conception, so as to bring it into line with the new classification. Tumours may be excluded, but simply for clearness, since the so-called endotheliomas could still be rightly considered as belonging to this group.

FIG. 10.



Section of spleen from a typical case of hereditary hæmolytic (acholuric) jaundice (low power).

There are three types of splenic disease which may be classified as belonging to this group:—

(1) Chronic hæmolytic (acholuric) jaundice.
(2) Disturbances in the lipoid metabolism of the reticulo-endothelial cells (Gaucher's disease; Niemann's disease; hypercholesterolæmic splenomegaly in diabetes).
(3) Chronic splenomegalies of unknown origin, showing marked proliferation of the reticulo-endothelial cells, and associated with giant cells.

1. *Chronic hæmolytic (acholuric) jaundice*, whether of the congenital or acquired variety, is such a well known disease that it seems quite unnecessary to refer to its clinical aspects. Recent very complete accounts have been given by Eppinger (1920) and Meulengracht (1922). The spleens from this group of cases are seldom enormously enlarged, and have a most characteristic histological structure quite unlike that of any other form of splenomegaly. The pulp spaces are seen to be engorged with red blood corpuscles, so numerous that the actual structure of the

* The Lettsomian lectures delivered before the Medical Society of London on Feb. 16th and 25th, and March 4th, 1931. Lectures I. and II. appeared on May 2nd and 9th respectively.

organ can only be made out satisfactorily when the spleen has been removed by operation and allowed to empty itself of as much blood as possible before fixation. It can then be seen that the spleen pulp is crowded with erythrocytes of normal appearance, whereas the blood sinuses are relatively empty. In sections stained for iron by the Prussian blue method the spleens can easily be separated into those removed during an inactive or active stage of this hæmolytic disease. In the first instance iron pigment is practically absent; in the second hæmosiderin is abundant, lying chiefly within reticulo-endothelial cells of the pulp and in the large endothelial phagocytic cells lining the blood sinuses.

It may be mentioned here that siderotic nodules, which are referred to in complete detail under diseases involving the vascular system, are by no means uncommon in cases of chronic acholuric jaundice. In one case of this kind, indeed, these nodules were more numerous than in any other spleen of my collection.

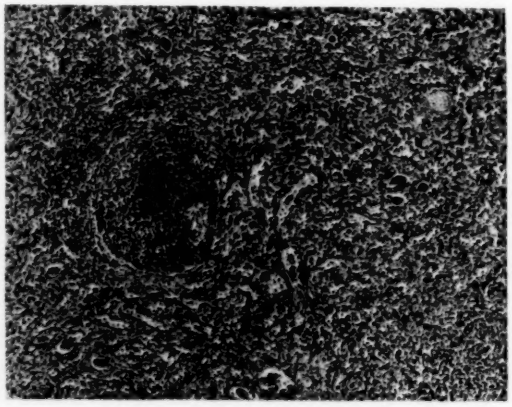
Another curious clinical point in connexion with these cases is the unusual frequency of chronic indolent ulcers of the leg. Such ulcers occur in a number of types of splenomegaly, and it is noteworthy that Stukeley (1722) has some interesting observations to make on this very point. He says (p. 68) "that even Hippocrates knew that ulcers in the legs of such—i.e., patients with splenomegaly—are difficultly healed," and Stukeley refers to a case of his own and to one observed by Mr. Becket at St. Thomas's Hospital.

In view of the histological changes seen in the spleen it is evident that, so far as this organ is concerned, the pathological process consists of a tremendous over-activity of the reticulo-endothelial cells which engulf and destroy the red blood corpuscles. In view of our knowledge of increased fragility of the red blood corpuscles in many, but by no means all, cases of this kind, it would seem probable that the disorder exists in the erythrocytes themselves, and that the splenic enlargement is simply the hypertrophic response of the overworked phagocytic reticulo-endothelial cells. On this view splenectomy may cure the disease by breaking one essential link in an abnormal chain, but the rest of the story is still unknown to us.

2. *Disturbances in the lipoid metabolism of the reticulo-endothelial cells.*—The cases in this group are particularly interesting and puzzling, and, as already stated, it is possible that new careful studies of the relations of the normal spleen to fat metabolism may help in their elucidation.

It was shown experimentally by Anitschkow (1914) that when animals are fed with excessive quantities of cholesterol the cells of the reticulo-endothelial system in the spleen and elsewhere store up immense quantities of cholesterol-ester, and the endothelial cells in ordinary paraffin sections appear large, round, and with "foamy" protoplasm. Clinical observations were ahead of this experimental result, and it was first observed by Coats of Glasgow (1889) that in some cases of diabetes, associated with lipæmia, the spleen pulp was chiefly made up of large finely granular cells, some of them fatty. Coats's work attracted little attention until Schultze (1912) and Niemann (1914) noted and described similar cases. Schultze concluded that the contents of the cells was a lipoid, but being isotropic only and not doubly refractive to light, he believed the lipoid could not be cholesterol-ester. A number of similar cases have been described since then, and two papers of fairly recent origin, from both of which a good account of the literature is obtainable, are by Oppenheimer and Fishberg (1925) and Dyke (1928). The majority of such cases have also shown definite deposits of cholesterol-ester in the skin (xanthoma), and some (e.g., Dyke's case) have been associated with hepatic cirrhosis and jaundice. It is an important point that the lipoid in the large foamy cells of the spleen may not show double refraction to light when viewed through crossed Nicol's prisms, and so confusion with the Gaucher and Niemann types of splenomegaly is possible. Great excess of cholesterol is, however, easily demonstrated by chemical analysis of the tissue, and it would seem that the cholesterol must be bound in some peculiar way to the protein molecule. Graham and Blacklock (1927) have shown that by heating frozen sections in glycerin or water the anisotropic characters of the lipoid may be revealed.

FIG. 11.



Section of a spleen showing marked reticulo-endothelial hyperplasia, with giant-cell formation.

Gaucher's disease was originally described in 1882, and excellent clinical and pathological accounts of it are given by Brill and Mandlebaum (1905), Pick (1926), and Graham and Blacklock (1927). In this disease the reticulo-endothelial cells in the enlarged spleen, in the liver and in the bone-marrow are filled to excess with a lipoid, evidently not cholesterol-ester, but the nature of which is quite unknown. In Niemann's cases the lipoid is apparently different again, but is probably a closely related compound. All of these diseases, as Graham and Blacklock conclude, are presumably the same in type, although the actual lipoids present must differ somewhat in chemical constitution. The splenic enlargement is evidently a reaction on the part of the reticulo-endothelial cells to some abnormal or unwanted product of lipoid metabolism.

In the liver the proliferation of the foamy endothelial cells containing the lipoid may, in any of the cases of this group, be so extreme that necrosis of liver cells and subsequent cirrhosis may ensue. In the bone-marrow collections of these cells may invade the ivory bone (as in an unpublished case which was shown to me by A. R. Rich, of Baltimore), so that an appearance resembling tumour formation results, and pathological fractures ensue.

3. *Chronic splenomegalies of unknown origin, showing marked proliferation of the reticulo-endothelial cells, and associated with giant cells.*—Into this group fall several of the very largest spleens in my collection.

I can do little more than describe the histology, and I have no good explanation of these cases to offer. I suspect that they may be the response of the reticulo-endothelial cells to chronic inflammation of long standing. In several cases of this kind the liver was definitely cirrhotic, but in others I have no information about the liver, so this question must remain open. The histological changes consist essentially of a great proliferation of the endothelial cells, so that the spleen becomes a heavy solid organ and the pulp spaces and venous sinuses are encroached on and partly obliterated. Along with this striking histological alteration giant cells appear, and are sometimes so numerous that the sections almost resemble those from a case of myeloid sarcoma. It has been held by some that these giant cells are megakaryocytes from the bone-marrow, but I am satisfied both from their histological characters and from the results of the oxydase reaction that this view of their origin is incorrect.

Diseases Affecting the Vascular System.

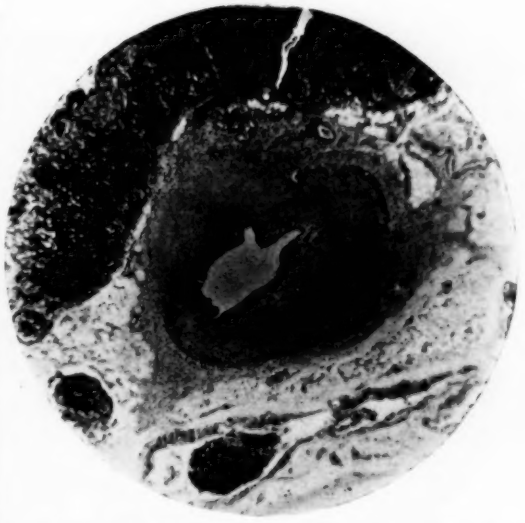
This, in my opinion, forms the largest group of splenomegalies met with in Britain, and I have paid particular attention to it both for this reason and because so many difficulties present themselves for solution. I have already put forward some of my conclusions in considerable detail (1929), and McMichael (1931), working in Prof. Wilkie's laboratory in Edinburgh, has followed up the work in an important paper entitled "Local Vascular Changes in Splenic Anæmia." One section of this group has been the centre of much controversy in recent times, owing to the views, first put forward by Gibson, of Oxford, and later by Emil-Weil, Nanta, Pinoy, and others in France, that the essential splenic lesion is due to mycotic infection.

I wish to describe two types of splenomegaly in this group: 1. Thrombophlebitic splenomegaly, in which thrombosis has occurred in the splenic or in the portal vein. 2. Splenomegalies associated with peri-ellipsoidal hæmorrhages and nodular siderosis. The second of these, as I have explained before, cannot be regarded as a true and separate group, since the characteristic lesion is found in a number of quite different types of splenic disease. But the lesion is so remarkable, and discussion concerning its ætiology has been so controversial, that for clearness alone these cases must be dealt with separately.

FIG. 12.

Thrombo-phlebitic splenomegaly. The splenic vein is filled with old and partly tunnelled thrombus. The wall of the vein is irregularly thickened. (From a specimen in the museum of University College Hospital.)

FIG. 13.



Section from the hilum of a spleen removed by operation. Shows great thickening of one of the main splenic vessels (low power).

1. *Thrombophlebitic splenomegaly.*—This group includes the cases in which thrombosis is found either in the splenic vein or in the portal vein and its branches. The splenic enlargement may be enormous, and a spleen of this type is the largest I have ever seen, weighing over nine pounds. These cases have attracted attention for many years, and among the most important papers are those of Dock and Warthin (1904), Dévé (1908), and Warthin (1911). In Warthin's paper a list of nearly 80 references is given, dating back to 1857. Sometimes the thrombosis appears to be fairly recent, and completely obliterates the lumen, but generally the thrombus is old, calcified, and often "tunnelled" so that a partial blood flow has been re-established. There are nearly always calcareous plaques or other signs of degeneration in the wall of the thrombosed vein, suggesting that the clotting has been secondary to chronic phlebitis. Warthin rightly pointed out that in many cases of chronic splenomegaly reported in the literature no mention is made of the condition of the splenic or portal veins, neither of which are usually fully examined in the ordinary necropsy. He states definitely that no example of splenomegaly or "Banti's disease" can be considered seriously in any ætiological study if careful examination of these veins has been omitted. It is also important, in spleens removed by operation, to examine the stump of the splenic vein left distal to the ligature. By doing this I have several times found thickening and even calcification in the small segment of vein, and McMichael also confirms this.

Microscopically the spleens of this group show histologically nothing so characteristic as to be diagnostic, and the chief features made out are a hypertrophy of the spleen pulp associated with generalised fibrosis.

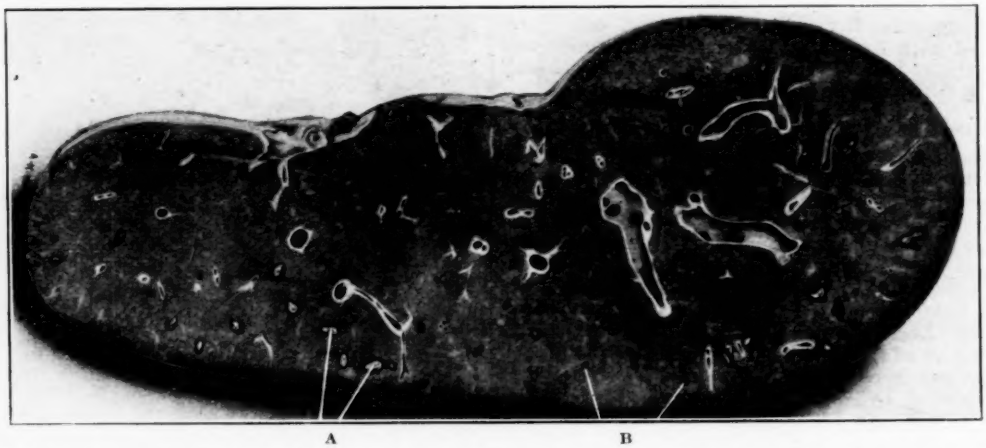
I have noticed that in these cases perisplenitis and adhesions are particularly dense, and unusual difficulties are created for the surgeon by the dense adhesions and also because of the very large size of the *vasa brevia* in the gastro-splenic omentum.

2. *Splenomegalies associated with peri-ellipsoidal hæmorrhages and nodular siderosis.*—The characteristic lesion of this group, the siderotic nodule, has been observed in a considerable variety of conditions in which the spleen is diseased. Jaffé and Hill (1928) have noted it in association with splenic anæmia, hæmolytic jaundice, portal and atrophic hepatic cirrhosis, leukæmia, Hodgkin's disease, sickle cell anæmia, and splenic tuberculosis.

It is, however, as I have stated in a previous paper, one of the commonest findings in chronic splenomegalies examined in this country, and is recognisable at once whenever the enlarged spleen is incised. Scattered over the cut-surface are a number of irregularly shaped yellowish-brown nodules, varying in size from a pin-point to several millimetres in diameter. Each yellowish-brown spot stands out prominently or even slightly projects from the cut-surface of the freshly incised spleen, and each is surrounded by a narrow chocolate-coloured rim. On scraping with the point of a scalpel the nodules are found to be firmly fixed, and can only be torn out with difficulty for bacteriological and chemical examination. On some nodules the knife makes a grating sound, evidently from the presence of lime salts. In other parts of the cut-surface of the spleen abundant small round or oval hæmorrhages occur, unassociated with any central pigmented zone, and on microscopic examination these are found to be hæmorrhages surrounding small arterioles. Diffuse hæmorrhages into the spleen-pulp are common in all forms of splenomegaly, but are readily distinguished with a lens from those surrounding the arterioles. In a few spleens I have found only the small ring hæmorrhages surrounding the arterioles, without any pigmented nodules.

The history of our knowledge of these brownish-yellow nodules is very interesting, but as I have already given it in full chronological detail (McNee, 1929) I have space here only for the briefest synopsis. The first description of them which I have found is that of Stengel (1904) who noticed them in a case of splenic anæmia associated with hepatic cirrhosis. Another very accurate account was soon given by Gandy (1905) under the heading "Lésions particulières de la rate dans un cas de cirrhose biliare." In our country the macroscopic lesion is generally known simply as the "siderotic nodule," but in France it is now often referred to as the Gandy nodule, or Gandy-Gamna nodule, although Gamna's account of two typical cases was as late as 1923. It was Gamna who compared the appearances of the pigmented nodules to "flakes of tobacco leaf."

FIG. 14.



A B

Spleen showing a large number of "siderotic nodules." Some very large (A) and of characteristic yellow-ochre colour; others pin-point in size (B). All are surrounded by a brownish ring of hæmorrhage.

The characteristic histological features of the fully developed siderotic nodule and of the perivascular hæmorrhages have been very fully investigated by, among others, Gandy, McMichael, and myself. It is interesting to note, however, that some writers such as Sprunt (1911) and Christeller and Puskeppelies (1924) have taken up the same problem under the headings of "calcium and iron incrustation" and "perivascular iron and calcium incrustation" of the spleen, unrelated to any questions of splenic anæmia or splenomegaly. The fully developed nodule has a central arteriole, the wall of which commonly shows hyaline changes, but the endothelium is healthy. Surrounding the arteriole is a wide zone of hyaline fibrous tissue, in which several varieties of pigment may be demonstrated and separated by special histological methods.

1. Long, segmented, light yellowish green masses, somewhat resembling a jointed bamboo, and often present in sheaves.

2. Golden-yellow granular pigment, either lying free in masses or contained within the fibroblasts. This pigment gives all the characteristic reactions for hæmosiderin.

3. Amorphous masses, often rounded like grains of starch, which stain blue-black with hæmotoxylin and are evidently calcium.

4. A pigment which stains dark blue with hæmotoxylin and with which the connective tissue fibres are encrusted. This pigment also gives the characteristic reactions for hæmosiderin.

The long segmented yellowish-green masses have

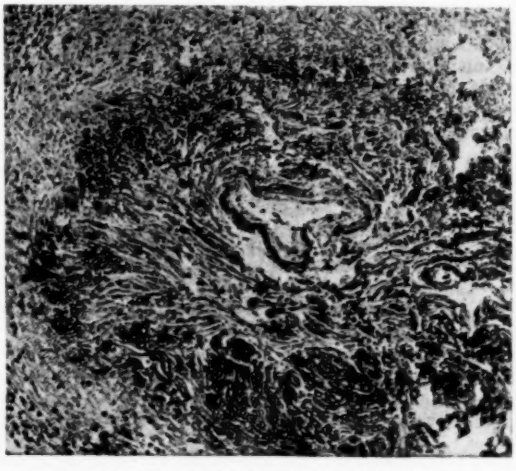
been specially investigated by Sprunt, McMichael, and others, and it now seems almost certain that they are composed of phosphate of iron. Encircling the nodule is a zone of hæmorrhage, in which the innermost layer of red cells is seen to be undergoing disintegration and organisation.

I have paid particular attention to the mode of origin of the nodules, and to their early stages of development. I am satisfied, as indeed was Gandy (1905), that the ring-like hæmorrhages surrounding an arteriole are the early stage of the lesion, and that the hæmorrhage undergoes the ordinary process of fibrosis and organisation. Both the fibrotic nodules and the perivascular hæmorrhages surround arterioles of the finest calibre, and, as has been stated, the vessel wall generally shows definite hyaline change. On attempting to trace the arterioles involved, I was at first unable to account for their apparent abrupt ending in the pulp, until I had learned the peculiar structure and functions of the ellipsoids. It is at or about the termination of a penicillar arteriole in an ellipsoid that both the fibrotic nodules and the hæmorrhages are found, although the hæmorrhage frequently runs back for some distance in the peri-arterial sheath. When the valvular function of the ellipsoid, preventing any flow back of venous blood into the arterioles, is remembered, it seems reasonable to suppose that in conditions of high portal blood pressure or of actual obstruction in the portal venous system a break or rupture is most likely to occur close to the obstructing valve.

In 1913–14, A. G. Gibson, of Oxford, first made the claim that some cases of splenomegaly are due to a streptothrix infection, and quite evidently from all that has subsequently transpired these cases are of the kind associated with siderotic nodules. In his first paper no macroscopic or microscopic descriptions of splenic histology are given, but his attention was concentrated on efforts to prove, by staining methods only, the presence of a streptothrix in the spleens. In two later papers Gibson was able to confirm, by cultural methods, the presence of a streptothrix organism in human spleens.

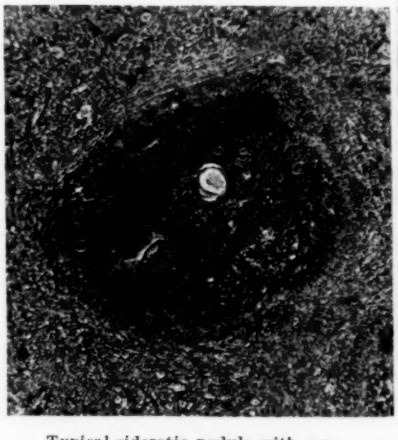
This work remained unsupported until Nanta (1926) described along with Pinoy and Gruny the presence of an aspergillus-like fungus in certain cases of splenomegaly occurring in Algeria. He claimed that the siderotic nodules are characteristic of this fungus infection, and from his cases he was able to isolate the parasite in culture. Support soon also followed from Emile-Weil, Gregoire, and Flandrin (1927) in Paris, who claimed that in 7 out of 16 cases of splenomegaly the same type of mycotic infection could be made out. In the last four years many additional papers on this mycotic hypothesis have been published, some in favour but most against the view.

FIG. 16.



Section of a siderotic nodule (Group 1). Crystals are seen along the lower margin, just within the ring of hæmorrhage (high power).

FIG. 15.

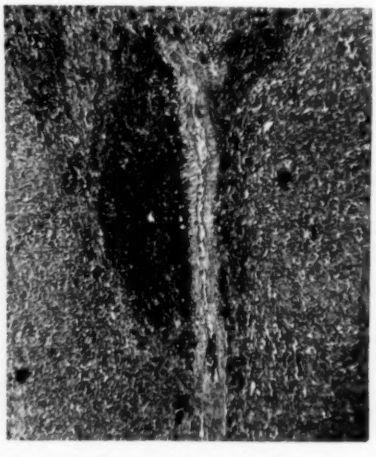


Typical siderotic nodule with central arteriole and narrow surrounding ring of hæmorrhage (low power).

FIG. 17.

Portion of a siderotic nodule, showing crystals and a few small masses of calcium (high power).

FIG. 18.



Peri-arterial hæmorrhage, without fibrosis or siderosis. From a spleen showing in addition many typical siderotic nodules (Group 1) (low power).

A full account of the matter is given by Gibson (1930) in his recent book entitled "The Mycoses of the Spleen," in which he reiterates his previous views.

I have naturally been greatly interested in this question, but am convinced that all the evidence of mycotic invasion based on histological evidence and

on methods of staining mycelium must be discounted, since the degenerated fibres (encrusted with iron), the branching crystals, and the rounded masses of calcium in the pigmented nodules are such obvious sources of error. It is more difficult to pass over the positive results of bacteriological cultures by different investigators, but a point strongly against the view that the organism grown stands in any causal relation to the splenomegaly is that several quite different organisms have been isolated. In my previous paper I felt compelled to leave the question of mycotic infection in this type of splenomegaly sub judice, but all that I have seen and read since then places me in complete opposition to the mycotic hypothesis. The arguments against this hypothesis have been well set forth by McMichael (1931) and I may refer you to his paper.

I have now described the histology of those types of chronic splenomegaly which fall into the old clinical categories of "splenic anæmia" or "Banti's disease." I have hitherto referred to such cases, in my own collection of spleens, simply as "splenomegalies of unknown or uncertain origin," but they now can be fitted very well into the groups of my proposed classification. Our lack of knowledge concerning their ætiology is almost complete. In Group 3 (diseases affecting the myeloid and lymphatic elements) we are faced at once with the puzzle of the leukæmias. In Group 4 (diseases affecting the reticulo-endothelial elements) we must discover much more concerning the metabolic activities of the cells of the reticulo-endothelial system in general and especially those situated in the spleen. Some of the problems for research are quite clear-cut, such as the reason for the excessive phagocytosis of red blood corpuscles in acholuric jaundice, and the explanation of the deposition of lipoid substances, either cholesterol-esters or of unknown nature, in a well-defined group of cases. As regards the splenic enlargements in which enormous proliferation of reticulo-endothelial cells is associated with giant-cell formation, we are so far without a clue. In Group 5 (diseases affecting the vascular system) we must first decide whether the mycotic hypothesis, supported by Gibson and a number of French writers, is true or false. I am opposed to this hypothesis, as I have already indicated, and believe that the solution of this problem is bound up with some other disturbances of the portal vascular system. The two characteristic lesions—phlebitis and thrombosis of the splenic or portal veins, and peri-ellipsoidal hæmorrhages with nodular siderosis—are strong evidence in favour of some form of vascular obstruction. We are still, however, very ignorant of the whole statics and dynamics of the important portal blood-supply, and although the conception of increased portal blood pressure has been mooted by French writers and by myself, there is little or no clinical or experimental evidence on this point. I hope shortly to undertake a study of the portal blood pressure under experimental conditions.

The possibility of unknown poisons, metabolic or bacterial, entering the portal circulation from the intestine must be thought of in all the groups, and particularly in those splenomegalies which are associated with hepatic cirrhosis. In the reticulo-endothelial group (Group 4) we do know that in, for example, Gaucher's disease the same lipoid substance may be deposited in the endothelial cells of both spleen and liver, and as a result the glandular cells of the liver may undergo necrosis. In the other groups, however, the cause of the hepatic damage ending in cirrhosis remains quite unknown, and at present we can only keep in mind the two possibilities of increased portal blood pressure and the entry of toxic substances from the intestine.

Tumours of the Spleen.

Simple tumours of the spleen are excessively rare. Litten describes fibromas, hæmangiomas, and lymphangiomas, but the last two might well be described as malignant. Primary malignant tumours are also rare, but when they occur are always sarcomas, and primary carcinoma of the spleen almost certainly does not exist.

The uncommon incidence even of secondary malignant growths in the spleen is well shown in a paper by Krumbhaar (1927), who summarises the results of the necropsies at the Philadelphia General Hospital. Among 17,500 necropsies 96 splenic neoplasms were found; but since the early records were unsatisfactory he confines himself especially to the last 6500 cases. In this latter group 40 splenic tumours occur, 6 being primary (4 sarcomas, 1 hæmangioma, 1 lymphangioma) and 34 secondary of all types including 21 carcinomas.

Sarcoma of the spleen is really the only important primary tumour, and both Smith and Rusk (1923), and Tasker Howard (1929) have written important papers on the subject with full bibliographies. Tasker Howard collected, up to the time of his paper, 115 cases from the literature, and added a further case of his own. Some important clinical details of his own patient are given. The spleen was large (1800 g.) and partially necrotic, but the remainder was almost entirely replaced by sarcomatous tissue. Clinically the patient closely resembled a case of pernicious anæmia, with high colour-index, leucopenia, achlorhydria, and a marked indirect van den Bergh reaction. Irregular pyrexia was present during the greater part of the illness.

The first example of sarcoma of the spleen seen by me was exhibited by Dr. Joan Ross at a meeting of the Pathological Society of Great Britain, where it attracted much attention. Since then I have had two cases in my own experience, one of them a woman of 58 (a patient of my colleague, Dr. Charles Bolton), and the other a man of 70 years. It is hoped to describe these two cases elsewhere, so I do not propose to enter into details about them now. All I need say is that there is great difficulty in determining whether these cases should be described pathologically as lymphosarcomas or endotheliomas, but this after all is a purely academic matter.

Diagnosis and Prognosis of Splenic Diseases.

It would take far too long to enter into a detailed discussion of all the points, clinical and clinico-pathological, on which an accurate clinical diagnosis of one or other type of splenic disease may be attempted. But, in actual fact, an accurate clinical diagnosis and classification is for the most part impossible at present. It will be agreed that the spleen is always enlarged when a suspicion of disease in it begins to be entertained, if we leave out the exception of thrombocytopenic purpura.

One type of splenomegaly in chronic hæmolytic (acholuric) jaundice can generally be picked out by methods now quite familiar. Spleen puncture is possible, but many of us are chary of employing it. Graham and Blacklock have, however, practised this method with success, particularly for the accurate diagnosis of Gaucher's disease, and they give a very complete and valuable account of the technique they have employed.

On the whole, however, the diagnosis during life can often only be made by the therapeutic measure of splenectomy.

Prognosis of splenic diseases.—The prognosis of most of the types of chronic splenomegaly met with in this country is, on the whole, unfavourable to prolonged life. An exception to this is chronic hæmolytic (acholuric) jaundice, but even in this disease the patient has to run the gauntlet of a number of complications such as gall-stones and biliary colic.

Cases of splenomegaly usually die from complications, and of these the most dreaded, but difficult to recognise in its early stages, is hepatic cirrhosis. I am unable to say what proportion of cases end with this complication, but obviously figures on the matter would be valuable.

Apart from hepatic cirrhosis and its well-known train of signs and symptoms, the other complications most to be feared are hæmatemesis, widespread abdominal thrombosis, and the onset of the "hæmorrhagic diathesis."

Splenectomy.

The indications for splenectomy have been already referred to indirectly in the section on diagnosis. There are only two points remaining which I wish to emphasise.

First, there are cases (such as Gaucher's disease) in which, if we knew the exact diagnosis beforehand, it would be inadvisable to remove the spleen, but on the whole the cases of splenomegaly in which removal of the organ offers the best hope of cure far outnumber the others. Secondly, splenectomy may be successful even in the most desperate and unpromising cases. I recall one patient in whom life, with good health, was prolonged for seven years, although prior to splenectomy over 100 pints of fluid had been removed from the abdomen. This patient, moreover, died of chronic interstitial nephritis and uræmia, a renal lesion being known to exist at the time of the operation. At the necropsy on this case the portal vein was found to be completely thrombosed.

Certain precautionary measures are very necessary before operation is considered. The first of these is concerned with the degree of anæmia present, and if anæmia is at all pronounced I am a confirmed believer in blood transfusion either before, during, or after operation, and sometimes even at all three times.

The second necessary precaution is one which I learned from the work of Howel Evans (1929), who brings out the great importance of blood-platelet counts in cases of splenomegaly prior to operation. Howel Evans began his observations following a paper by Rosenthal (1925), who described the results of splenectomy on 16 cases of splenic anæmia. Three patients died in the first year of widespread portal thrombosis, and three others suffered from venous thrombosis, fortunately not fatal, in different venous trunks. In the last nine cases Rosenthal carried out blood-platelet counts before and after operation, and on his results divided the nine cases into two groups.

(*a*) *Thrombocytopenic group*—five cases. In these patients the blood-platelet count was low before operation, rose slightly afterwards, then fell to normal. A clinical feature of all of these cases was a marked hæmorrhagic tendency.

(*b*) *Thrombocythæmic group*—four cases. In these the blood-platelets were normal or slightly subnormal before operation, but rose rapidly to high figures (1,000,000 or more) after splenectomy, and, moreover, the increase persisted for months or years. All of these four cases developed thrombosis; one a fatal mesenteric thrombosis, the others thrombosis of the brachial, jugular, and femoral veins respectively.

Howel Evans has confirmed these observations in a series of 19 cases, of which 9 fell into group (*a*), 7 into group (*b*), while 3 gave intermediate results.

From these observations it is obviously important to study the blood-platelet count before and after splenectomy in all cases, in reference to both prognosis and treatment. Only a lead, however, has been given, and so far we are unable to modify the conditions found; but it must be remembered that both thrombosis and a hæmorrhagic tendency are equally dangerous, and we must attempt to discover means to prevent them both.

Are there any alternatives to splenectomy? Two methods of treatment must be considered—the use of X rays in some diseases, and ligature of the main splenic artery in others.

It is difficult to discuss briefly the merits of X ray treatment of an enlarged spleen, particularly in cases in which no accurate clinical diagnosis has been made. There is, however, one group of cases in which this treatment offers the best results at present attainable—namely, the chronic leukæmias, especially of the spleno-medullary type. Our methods of treating these cases by X rays, controlled carefully by regular blood counts before and after exposure to the rays, have quite obviously improved in recent years, and I have two cases under my care at present in which the outcome, so far as prolongation of life and return to good health are concerned, can only be described as amazing. I have seen nothing like them in my past experience of leukæmia, which is considerable. Similar results must be known to most of you, but the belief that the great improvement is only for a limited time is well founded. In Hodgkin's disease temporary improvement may also ensue, but not, in my experience, so great or so prolonged as in the leukæmias. The chief danger of X rays in these cases, now that burns are avoidable, is an undue destruction of the leucocytic tissues so that marked leucopenia results and septic complications may ensue. This danger is particularly to be feared when X ray exposure of other parts of the body, such as the bones, lymphatic glands, and mediastinum has also been carried out. It must be remembered that the effects of a single exposure to X rays may be prolonged and long drawn out, so that nothing but a series of careful blood counts can avoid this error in treatment.

Ligature of the main splenic artery is a method which, with the help of my surgical colleagues, I much desire to test in suitable cases of chronic splenomegaly. So far I have no personal experiences to relate, but the operation is apparently quite safe and by no means a new suggestion. A full account of the literature is given in a recent paper by Valdoni (1929). I can think of several types of case in which this simpler operation might have been performed instead of splenectomy, and certainly this procedure should be considered seriously when dense and extensive retrosplenic adhesions greatly increase the surgical risks of removal of the spleen.

The subsequent history of patients from whom the spleen has been removed for the various types of chronic splenomegaly is of obvious interest, but my experience is not yet long enough to tell you much of importance. Most of my cases have done well, and most of them are still alive. I have alluded to the two cases in which carcinoma developed, and I have been fortunate in having no examples of thrombosis at a long interval after operation.

There is one further point to which I ought to refer. It will be remembered that, as Krumbhaar and Musser showed experimentally, removal of the normal

spleen in animals is followed by a secondary anæmia, often of long standing. The same phenomenon may occur after splenectomy for a number of the splenic diseases which I have described It is not always so, and the blood count may return to normal, but in a number of patients intermittently under my observation at present the blood count remains at about two-thirds of the normal, although the patients themselves can perform all ordinary duties and feel reasonably well.

Conclusion.

In concluding these lectures I must emphasise my ignorance of the causation of the splenic diseases which I have described. The spleen still remains, in Galen's words, an organ of mystery both in its diseases and in many of its functions and metabolic activities.

The organ is not essential for life, and practically no direct gain in physiological knowledge has resulted from splenectomy in man or animals. Unlike the thyroid or pancreas in which striking clinical phenomena follow excision, there are no special facts to be noted when splenic function is arrested by excision or even by disease. It is evident that advances in our knowledge of splenic physiology must come in less direct ways.

I am convinced that, while waiting for advances in physiology, a further obstacle to progress has been a poor general knowledge of the essential structure of the organ, and I have shown how recent physiological experiments have assisted us even in the interpretation of structure as well as of function.

With accurate knowledge of structure, even when problems of function remain unsolved, it is possible to examine diseased spleens and to observe and interpret the histological changes which have taken place. In this way a *pathological classification* can be made according to the chief lesions, and this is what I have attempted to do and to describe in these lectures.

I have suggested how, from the peculiarities of some special lesion, a strong lead may be given to further study. The histological changes in Gaucher's disease, to give one example, invite us to investigate more closely the relations of the spleen to the metabolism of fats and lipoid substances.

It is only, however, when our knowledge of splenic function is increased by observation and experiment that we may expect to correlate disordered function with bodily disorders which we recognise by clinical symptoms. Then, and only then, can we attain to a *clinical classification* of splenic diseases.

I hope that after long years of inactivity and stagnation the recent physiological experiments of Barcroft, Binet, Tait, and others mark a new period of progress in the study of "The Spleen, its Structure, Functions, and Some of its Diseases."

Many friends both here and in America have helped me by sending spleens, or parts of them, and clinical histories of their patients. I wish to thank them all, and to acknowledge the special assistance I have received from my colleagues at University College Hospital.

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(*Continued at foot of next column.*)

THE SURGICAL TREATMENT OF SIMPLE ULCERS OF THE BODY OF THE STOMACH.

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In the last few years there has been a great revival in the medical methods of treatment of chronic gastric ulcers, and to-day many claim that all uncomplicated ulcers are capable of being cured by these methods. This form of treatment is by no means new. In 1902 the late Dr. F. J. Smith was strongly advocating the use of milk diet with the regular administration of alkalis, and it is remarkable how closely his technique corresponded to that advocated to-day. The majority of these cases improved and lost all their symptoms, but it was gradually realised that the apparent improvement was in a large number only the passage into one of the usual periods of remission, and that when this period had passed through its customary time the symptoms returned. So much evidence was produced that with this treatment there was still a high mortality from hæmorrhage and perforation that it was gradually abandoned and treatment by surgical measures became usual. Undoubtedly, the pendulum swung too far, and operations were performed for small ulcers in their early stages when they were still capable of being cured by medical methods. What was more serious was that the operations came to be regarded as simple procedures, and thus were often inadequately performed by those with but little experience. Gastric surgery had thus somewhat unjustly tended to fall into disrepute.

Efficacy of Medical Treatment.

There is to-day, as always, considerable difficulty in comparing the two methods of treatment—that is, in determining the indications for surgical interference.

(*Continued from previous column.*)

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Much has been written in favour of either method, but it is almost impossible to obtain reliable evidence from the various publications; for so often they refer to ulcers of different types in different stages of development, and I should be the first to admit that even one's own experience is fallacious, for although nearly all the cases that seek my advice have had prolonged courses of medical treatment they of necessity only represent the failures of such a method, and I have no means of determining what percentage they form of the total so treated. In the same way the surgical failures reported by physicians may and probably do represent only a very small proportion of the number that have been successfully treated. For this reason I shall make no quotation from the large number of statistics which have been published, but shall attempt to show from a consideration of my own cases (Tables I. and II.), which are in greater part medical failures, what are the indications for surgical interference. It is, however, well to remember that the late end-results of a large series of cases treated medically have never been published, whereas the percentage of cures in large series that have been operated upon for at least five years is fairly accurately known.

TABLE I.—*Gastric Ulcers.*

	Males.	Females.	Total.
Lesser Curve—			
Non-adherent	136	43	179
With duodenal	26	6	32
Adherent	150	53	203
With duodenal	19	7	26
Hour-glass	1	75	76
Gastro-jejunal	47	4	51
Recurrent	8	—	8
Perforated	31	6	37
After suture	3	6	9
Severe hæmatemesis	7	2	9
Recurrent after G.E.	77	7	24
Acute	11	19	30
	456	228	684

TABLE II.—*Pyloric and Duodenal Ulcers.*

	Males.	Females.	Total.
Pyloric—			
No dilatation	82	15	97
Dilatation	74	27	101
Duodenal	403	79	482
Perforated	26	1	27
After suture	21	2	23
Severe hæmatemesis	6	1	7
Acute	13	2	15
	625	127	752
Gastric	456	228	684
	1081	355	1436

RELIEF OF PAIN.

As a general rule a patient with an ulcer of the body of the stomach presents a history of several years' periodic attacks of pain, often severe in nature, which arises shortly after a meal, is relieved before the next meal, and unlike that of a duodenal ulcer does not generally wake the patient at night. Examination shows, as a rule, a healthy male, perhaps with some anæmia, who has few or no physical signs beyond an area of deep tenderness localised to the site of the ulcer. A test-meal shows free HCl and a total acidity within the upper limits of normal. The stools may show occult blood, and radiography generally reveals a characteristic niche in some portion of the lesser curve or a meniscus remaining on the posterior surface after the stomach is emptied.

Without entering into a discussion of the various views as to the cause of the pain, I can say that my own experience supports the views of V. J. Kinsella, that both the pain and deep tenderness are dependent upon local tension due to an acute inflammatory change which after persisting for a certain period dies down, and the patient then enters into one of his periods of remission, during which, however, the ulcer is still present. It would be expected, therefore, that medical treatment would do much to decrease this inflammatory change, and thus to relieve the patient of his symptoms. Changes in the radiographic appearance of the meniscus must not, however, be relied upon too strongly as an indication of a cure; for, as A. E. Barclay has shown, the depth of the niche is largely dependent upon an inflammatory swelling of the mucosal margin, and as this decreases the pit or crater rapidly decreases in depth and the ulcer appears to be healing, although it is still present. My own experience has been that very severe pain, and especially pain which tends to persist and is referred to the back, is evidence of a deeply penetrating ulcer which has involved the substance of the pancreas, and thus not only is a severe and persistent pain an indication against the use of medical treatment, but such treatment often indeed fails to relieve the symptoms. A prolonged history extending over many years suggests a chronic callous ulcer with much fibrosis which is unlikely to be cured by prolonged rest and alkaline treatment, and is thus in itself an indication for surgical intervention. A very large crater as seen by examination with X rays is suggestive of similar change, but is not definite; for in some cases a thorough medical course may relieve the symptoms and lead to a rapid diminution in the size of the crater, so that even if a cure is not attained diminution of the inflammatory change may lead to much improvement, and the necessity for less severe operative measures. Definite evidence of the failure of careful treatment to relieve the symptoms, or a rapid recurrence after relief by such treatment is a positive and indeed the most common indication for surgical interference. It is true that in a certain number of cases the recurrence is due to the fact that the treatment is not followed for a sufficiently long time. Many physicians advocate a most careful dietetic and alkaline régime for many months or, indeed, for the rest of the patient's life, but the mere fact that such a course is so irksome or difficult that the patient is unable to follow it while carrying out the ordinary duties of his life's work is an indication for more radical measures. I have found within the last year that an increasing number of patients who have been relieved by a course of diet and alkalis are seeking surgical aid because they have found it impossible to maintain the irksome medical treatment, and when it is abandoned their symptoms have tended to recur. Nor is such treatment even to-day entirely free from danger. Morton, writing of a series of 139 proved chronic ulcers treated at St. Thomas's Hospital in 1929, states that 13 were verified at autopsy.

PERFORATION AND HÆMORRHAGE.

Undoubtedly the greatest dangers of a peptic ulcer are perforation and hæmorrhage. That an immediate operation should be undertaken in the event of a perforation is beyond question, but there is not so much unanimity of opinion in cases where a perforation has been operated upon and sutured without any other procedure. I have frequently laid stress upon the fact that cases treated by simple suture rarely make a complete recovery. Such a case should, therefore, always be carefully watched, and if the symptoms recur further treatment should be advocated. I have now had to operate upon 32

cases where symptoms have recurred after a simple suture for perforation, and these symptoms have not been relieved by medical treatment; but here again I have no means of determining what proportion these represent of the total number sutured. It has been, however, interesting to find that when the simple suture has been performed by my own assistant at hospital, and the case has then been watched, there has not been a single recovery from this measure. If a patient has been fortunate enough to have passed safely through the danger of a severe hæmorrhage he will rarely be willing to face the danger of a second and will seek operative treatment. Continued loss of blood while he is under medical treatment is evidence that the condition is not abating, and this is so even when the loss is very small and is only recognised as occult blood in the fæces; in fact the presence of such blood should always be regarded as an urgent danger-signal, and an operation performed without delay in order to anticipate a severe and dangerous hæmorrhage. There is still considerable difference of opinion as to the correct treatment in patients who, being evidently the subjects of chronic ulceration, are seen immediately after or during a severe hæmorrhage. Many physicians believe that the danger of operative interference is very great, and that if the patient be carefully treated by medical measures death rarely occurs. My own experience does not entirely support this view, and although there are many cases which will recover I feel that if there be any doubt, or if the hæmorrhage be repeated after a short time, an operation should certainly be performed, preferably immediately after or during a blood transfusion.

When the ulcer has led to so great an amount of fibrosis that distortion of the stomach has occurred, mechanical symptoms may arise from the distortion itself. The commonest of such changes is that of an hour-glass stomach. This only occurs in women, and generally in those who are the subjects of ptosis. It is associated with so characteristic a history that a diagnosis is rarely difficult even without radiography. In such conditions medical treatment is of no value, and an operation should be undertaken before obstruction has caused profound deterioration in the general health.

CANCER.

Beyond question the great objection to prolonged medical treatment is that it may be carried out when carcinoma of the stomach is present, and thus the one opportunity of a cure is lost. The recent fierce controversy as to the frequency of carcinomatous changes in a chronic ulcer is now abating, and it is becoming generally accepted that some 10 per cent. of chronic ulcers become carcinomatous, and that rather less than 20 per cent. of the carcinomata originate in chronic ulcers. The real danger which is so often overlooked is that cases which are carcinomatous in the beginning may be mistaken for chronic ulcer and treated by medical methods until the condition is inoperable. Even to-day, of the cases of carcinoma that come to operation, only about 33 per cent. are capable of radical treatment. The fact that one type of chronic ulcer of the lesser curve has a continuous short history of only a few months, and thus superficially resembles a carcinoma, increases this difficulty. Fortunately, a carefully taken history will nearly always give some indication that the lesion is either primarily carcinomatous or that a carcinomatous change has taken place in a chronic ulcer. The most important of such points are a short history, continuity of the symptoms, persistence of the pain from one meal to another, a gradual loss of appetite, and the failure of vomiting to give relief to the pain. If there be anything in the history to cause the merest suspicion of the presence of carcinoma, an operation should always be performed.

The indications for operative treatment are therefore:—

The presence of severe radiating pain as indicating a deep penetrating ulcer.
The failure of medical treatment to relieve the symptoms.
The presence of a very long history suggesting a fibrosed and callous ulcer.
Recurrence of symptoms shortly after an adequate course of medical treatment.
Inability of the patient, owing to the nature of his work to follow the suggested lines of treatment.
The presence of a recent or old perforation.
The onset of severe or repeated mild hæmorrhage.
Distortion and especially hour-glass deformity of the stomach from fibrosis.
The slightest suggestion of the presence of carcinoma.

Surgical Procedures.

It is often forgotten that the underlying aim of an operation upon the stomach is to bring about certain physiological and mechanical changes, and that these changes may be produced by entirely different methods; so that one surgeon by using a technique which he has perfected finds that it gives him better results than a different technique preferred by a second surgeon. Forgetfulness of this fact has often led to heated discussion as to which is the correct operation, and thus has done much to discredit surgical treatment. My advocacy of any one method must therefore in no sense be regarded as a dogmatic statement as to which is the ideal treatment, but simply an account of the method which has given the most satisfaction in my own hands.

GASTRO-ENTEROSTOMY.

It is not very many years ago that gastro-enterostomy was considered as the operation of choice for all ulcers of the body of the stomach, and there are still surgeons who prefer it to other methods and obtain satisfactory results by its use. In my own hands, and, as a study of the literature shows, in the hands of most other surgeons, it has not proved a reliable cure. It is generally stated that it cannot be depended upon to cure the patient in more than about 40 per cent. of the cases. In my own small series of 57 chronic ulcers other than perforations, there were seven in which the ulcer persisted (Table III).

TABLE III.—*Gastro-enterostomy.*

	Total.	Mortality.	Recurrence.	Carcinoma.
Lesser curve	41	—	4	1
Anterior	13	3	—	—
Severe hæmatemesis	3	—	3	—
	57	3	7	1
Acute ulcers	17	5	—	—
Perforations	30	7	—	—
	104	15	7	1
Post G.E. for all simple ulcers	690	12	5	2

It is interesting to note that in my series of 30 cases of lesser curve perforation, where the opening was sutured and a gastro-enterostomy was performed, there has not been a single example of persistence of the ulcer. I would explain this on the assumption that the suture of the perforation acts as an autolytic stitch resection, and so destroys the ulcer. It is not in my experience due to the fact that the perforated ulcers are acute and do not require any treatment

other than suture, for in my series there have been 32 cases of perforated ulcer which have persisted after simple suture as performed by other surgeons, and what is even of greater interest is that occasionally an ulcer may develop in the body of the stomach after a gastro-enterostomy has been performed for a pyloric or duodenal ulcer. In my own series there have been 14 cases where the evidence was very strong, that there was no trace of any such ulceration at the time of the gastro-enterostomy. If such a procedure, therefore, is unable to prevent the development of an ulcer it is even less likely to cure it when present. It is, however, curiously uncertain in its action. Occasionally there is found at operation a very large ulcer situated high up on the lesser curve of the stomach with acutely œdematous margins. Owing to the risk of partial gastrectomy for so extensive a lesion, often in a patient seriously debilitated by severe pain, vomiting, and hæmorrhage, it is my custom to perform a gastro-enterostomy alone, and in five such extensive cases the ulcer after this simple treatment decreased so much in size that the patient remained free from symptoms for as long as a year, after which time the ulcer was so small that a resection was a feasible and safe operation. I believe that this is a much more satisfactory form of treatment than the performance of a jejunostomy or of partial gastrectomy which will have to be so extensive that it is almost complete and is a dangerous operation in so ill a patient. In some such cases the ulcer—large as it is—has completely disappeared and no second operation has been necessary. It is cases of this type which explain the apparent cures of gastric carcinoma after a simple gastro-enterostomy.

PARTIAL GASTRECTOMY.

Undoubtedly the operation most frequently performed to-day for an ulcer of the body of the stomach is that of partial gastrectomy. It is claimed that by this method not only is the ulcer removed entirely but that the ulcer-bearing portion of the stomach is also taken away, and thus the risk of recurrence of the ulcer or of subsequent carcinoma is greatly reduced. It is to be noted that the ulcer-bearing portion is almost, if not quite, synonymous with the acid-secreting portion of the stomach, and thus by this operation the acid is reduced or completely abolished. I cannot help feeling, however, that this latter claim is based upon some confusion of thought, for ulcers of the body are not as a rule associated with a very high acid, and thus it is that gastro-jejunal ulcers following a gastro-enterostomy performed for this type of lesion are almost entirely unknown. In my own series of 59 gastro-jejunal ulcers only one

TABLE IV.—*Partial Gastrectomy.*

	Total.	Mortality.
Lesser curve	141	 21
Hour-glass	45	 2
Gastro-jejunal	42	 13
Recurrent ulcers	18	 2
	246	38

Recurrence and gastro-jejunal ulcers, nil in each instance.

occurred after an operation for a lesser curve ulcer. Moreover, a partial gastrectomy does not give an absolute immunity against a later gastro-jejunal ulcer. In my own 59 cases, four had followed a partial gastrectomy although in the one case performed by myself I had had to be content with a smaller resection than usual owing to dense perigastric adhesions. For this reason some Continental surgeons, among whom the operation is most popular, have abandoned the Polya method and returned to the Billroth I. type of operation. There is no doubt that with experience the method becomes technically easy to perform and can be carried out for relatively large ulcers high up on the lesser curve, especially if modified as in the Schoemaker and Pauchet's method. It also gives very satisfactory results, the convalescence generally being smooth and rapid, and the freedom from after-complications being very satisfactory. Although in my own hands the results have been very pleasing, I have for long been theoretically dissatisfied with it, in that so large a portion of normal stomach has so frequently to be removed. It is often necessary with a small ulcer, perhaps only half an inch in diameter but situated high up on the lesser curve, to remove seven-eighths of the stomach. These objections are not wholly theoretical, for it is now well recognised that pernicious anæmia is dependent upon the absence of a gastric ferment, partial gastrectomy having in several cases been followed by this form of anæmia. Morley and Roberts have shown that the Polya operation carries with it a serious liability to post-operative anæmia, 12 of the 21 cases they examined showing such a change. This liability was, however, much less with the Schoemaker method. In my own series of 388 partial gastrectomies only one has developed a serious anæmia, which Dr. J. A. Ryle informs me may turn out to be of the pernicious type, but several cases who have had profound secondary anæmia from hæmatemesis before operation have taken a very prolonged period to recover after a partial gastrectomy. The value of this method in preventing the possibility of the onset of later carcinoma has also, I believe, been exaggerated. The frequency of a carcinomatous change in an ulcer is now known to be less than was at one time believed, and as a general rule such a change will often give rise to an alteration in the symptoms sufficient to suggest the possibility of the presence of carcinoma, so that should there be the slightest suspicion of such a change either from the nature of the symptoms or from the appearances at the operation, a partial gastrectomy should be performed. That the danger of such a complication occurring late is not great is shown by the fact that in my own series of 306 cases, in which a more localised operation was alone performed, there have only been three examples of the later appearance of carcinoma (Table V.), one of which was at the pylorus and another

TABLE V.—*Resection and Gastro-enterostomy.*

		Total.	Mortality.	Recurrence.	Carcinoma.
Lesser curve	excision .	244	 9	 1	 3
	cautery ..	34	 1	 2	.... —
Hour-glass		28	 2	 1	.... —
		306	12	4	3

at the cardiac orifice: only one having occurred in relation to the previous ulcer site, and in no case has carcinoma been found in one of the locally removed ulcers.

In some cases of large adherent ulcers relatively high up, but neither so large nor so adherent as those for which a gastro-enterostomy is alone performed, a partial gastrectomy is the only possible operation. There is no doubt that in such cases this operation is easier to perform than a local resection, as it gives much better access to the ulcer and allows of a more satisfactory approach in order to free it from the pancreas. The actual method of performing the partial gastrectomy is, I believe, of but little importance provided the surgeon has practised the

method he advocates. My own preference is for the original Polya method with the afferent loop attached to the lesser curve and the opening being some four to five inches from the duodeno-jejunal flexure, but the antecolic method either with the Balfour or Moynihan loop is quite satisfactory, and I frequently use it if the mesocolon is short. For a gastro-jejunal ulcer, where the opening in the jejunum is already made and is generally close to the flexure, I have no hesitation in performing the posterior method with the afferent loop going to the greater curve. The procedures of Schoemaker and Pauchet, which give very similar end-appearances, are performed by many, as they remove more of the lesser and less of the greater curve, but here, as elsewhere, I believe that surgeons will obtain the best results by the use of procedures in which they have been most practised.

LOCAL RESECTION AND GASTRO-ENTEROSTOMY.

The practical drawbacks of simple gastro-enterostomy and the theoretical objections of partial gastrectomy would seem to be best overcome by local destruction of the ulcer combined with gastro-enterostomy. There appears, however, to be a very wide diversity of opinion as to the value of this operation. On the Continent a partial gastrectomy has always been the method of choice, and in this country many others are adopting the same method, probably because of its wide applicability. In the United States local excision with gastro-enterostomy have been widely practised in the Mayo Institute, either by the method of simple excision or of late more largely by Balfour's method of cautery excision. From the theoretical consideration it has the great benefit that it removes the diseased portion and that only; that it has a low mortality and it gives a high percentage of successful results. By completely excising the ulcerated area the possibility of perforation or hæmorrhage from the eroded vessels is overcome, together with the danger of hour-glass constriction or deforming adhesions from contraction of the ulcerated area. The objection that it does not remove the whole of the acid-secreting area is of but little importance with an ulcer of the body of the stomach, for in these cases there is not the same high acidity as with a pyloric or duodenal ulcer. My own preference is to remove the ulcer widely with the knife and scissors by means of a wedge with its base on the lesser curve and to suture the resulting opening. If the wedge be made with a sufficiently wide base an early hour-glass constriction can actually be overcome. For small ulcers high up on the posterior surface this method is not easy to accomplish, and therefore Balfour's technique of destruction with a cautery is preferred, although I have always felt that this means is not quite so satisfactory in that the edges which are left to unite are formed of more injured tissues. When the resulting opening left by either method has been closed a gastro-enterostomy must be performed, for without it recurrence is common and is indeed to be expected, for the conditions which give rise to the ulceration of the normal surface are more likely, if uncorrected, to do so on a recent suture line. My own custom in this type of case is to make the gastro-enterostomy on the posterior surface parallel with and close to the greater curvature, half being proximal and half distal to the line of suture. Since this opening is often relatively high up in the stomach, it would seem preferable to temporarily occlude the pylorus, and it is my invariable rule to do this with a running silk suture. Observation of cases in my follow-up department has shown that after it the pylorus usually opens again in from six to eight weeks.

The chief objection which has been raised to this operation is that there is a risk of recurrence. It is, however, very slight. In my own series of 244 cases there has only been one recurrence. In my own hands I have found this operation the method of choice and invariably performed it where possible, chiefly on the grounds that it is associated with a low mortality and a higher percentage of complete recovery than with any other form of gastric operation. I reserve partial gastrectomy for large adherent ulcers, for those in which there is the slightest suggestion of carcinoma, and for cases of hour-glass constriction with a very narrow isthmus.

Results of Operation.

The great benefit of posterior gastro-enterostomy lies in its extreme safety. In my own series of 690 cases of posterior gastro-enterostomy the total mortality was under 2 per cent. (Table III.), while in a later series of 290 cases in this group there was no mortality, and in the small group of 41 cases of ulcer of the body of the stomach in which this step was alone performed there were also no deaths. When an anterior anastomosis has to be performed owing to the very large size and acuteness of the ulcer on the posterior wall, the mortality is naturally higher, my own 13 cases showing three deaths. Although the safety of the operation is an important factor in choosing the operative treatment for patients with very large ulcers who are seriously ill from prolonged pain and vomiting or severe hæmorrhage, it is largely offset by the risk of persistence of the ulcer, for, as I have already pointed out, this occurred in seven of the 57 of my own cases which had to be treated by this method.

The statistical comparison of the results of partial gastrectomy and local resection with gastro-enterostomy is difficult, for it will vary so greatly with the preference of the individual surgeon for the one or other method, and the choice of case for which he performs the individual operation. Thus the surgeon who uses partial gastrectomy as a routine operation for all cases will have a much lower mortality than one who performs it relatively seldom, and only for extensive ulcers in poor subject (Table IV.). There is no doubt, however, that partial gastrectomy is an operation of considerable magnitude even when carried out as a routine measure, and thus performed in easy cases with small non-adherent ulcers. Thus Louria, in analysing the cases of von Haberer, who is a strong supporter of the routine use of partial gastrectomy, found that the total mortality was 8·4 per cent., although with the use of Billroth's first method it fell to 6 per cent., but that the mortality can be even further reduced by wide experience is shown by Finsterer's series of 407 cases with a mortality of 4·4 per cent., which was again reduced in the last three years to 1·8 per cent. In the hands of surgeons without this wide experience and skill the mortality is more likely to approximate to 15–20 per cent. Recurrence after operation is very rare. When performed for pyloric or duodenal ulcers it does not give a complete immunity to the later occurrence of gastro-jejunal ulcer, and in fact some surgeons have abandoned the use of Polya's operation for these conditions owing to its danger. When performed for ulcers of the body, this complication is practically non-existent, and true recurrence is almost unknown. In my own series of 246 cases there was no single example (Table IV.). The chief objection lies in the theoretical one of the removal of so

large a portion of the normal stomach and the possibility of a later occurrence of a severe pernicious anæmia, the frequency of which is very difficult to estimate.

Local resection, on the other hand, appears to be a much less severe procedure. In my series of 244 ulcers of the body treated by this method there were nine deaths, a mortality of 3·6 per cent., while in 28 hour-glass stomachs there were two deaths, a total of 272 cases with 11 deaths (Table V.). There were, however, in this series two recurrences, one after excision of a simple ulcer and one after excision for an hour-glass stomach. The end-results are good with either method. In the series of cases watched for at least five years which I have previously published, local resection with gastro-enterostomy gave 88 per cent. known cures, a figure which rose to 92·1 per cent. if the untraced cases were omitted. My own view, therefore, is that wherever possible either a local resection with a gastro-enterostomy or a partial gastrectomy should be the operation of choice. In my own hands local resection has given the lower mortality and the highest percentage of late cures and is free from the objection that it removes a large portion of the normal stomach.

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TREATMENT OF TETANUS BY INTRATHECAL INJECTION OF CARBOLIC ACID.*

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THE recognised treatment of tetanus with daily intrathecal injections of 12,000–20,000 U.S.A. units of concentrated antitetanic serum is uncertain and often disappointing in its result. Bacelli's carbolic treatment (10 c.cm. of 1 per cent. solution subcutaneously every two hours) has not been successful in other hands. In 1923 I began treating a few cases of tetanus with intramuscular injections of 2 c.cm. of 5 per cent. carbolic acid twice a day. The result was far from satisfactory, but success in one mild case put the idea into my mind that carbolic acid could counteract the tetanus toxin, and if brought in close contact with it might overcome it altogether.

It is known that carbolic acid has the effect of destroying tetanus toxin in vitro. Kitasato injected toxin plus carbolic into guinea-pigs and they did not get tetanus, while the controls treated with toxin alone showed tetanic symptoms and died. There is no reason why carbolic should not be administered intrathecally, if a solution could be found that would not produce too intense a reaction or inflammation.

Fresh leucocytes were obtained by lumbar puncture from a case of tetanus which had been treated 24 hours previously with intrathecal serum (which always causes a mild aseptic meningitis). Equal amounts of the cerebro-spinal fluid and different strengths of carbolic solution in physiological saline (0·75 per cent. were mixed and incubated at 37° C. for an hour, and then a drop was examined under the microscope. The 1 in 400 carbolic solution was found to be the strongest that did not affect the leucocytes—except that they appeared to be slightly clearer than before treatment. This solution has a specific gravity of 1006, equal to that of the cerebro-spinal fluid. It was prepared for injection by adding 400 c.cm. of physiological saline (0·75) to 1 c.cm. of liquefied carbolic acid. It was boiled before use.

Narration of Fourteen Cases.

CASE 1.—A boy of 14 was admitted at 8 P.M. on July 18th, 1924, with signs of tetanus of 24 hours' duration. He had had a nail-prick on the sole some 12 days before. General clonic spasms occurred every two or three minutes with acute pain. His teeth could open to only one fingers-breadth, his back was arched, and his legs rigid. Our serum was out of stock, and I was loth to try carbolic. However, I summoned up courage, and gave 20 c.cm. of 1 in 400 carbolic in normal saline through a lumbar puncture, after withdrawal of the same amount of cerebro-spinal fluid. The foot of the bed was raised 12 inches for two hours.

The next morning, to my surprise, the boy was walking about the ward when I went my round. The nurse reported that an hour after the injection he had had a fit and a pink rash had come out all over the body. On examination he appeared well, without rigidity anywhere, and he could open his mouth widely. The skin showed a pink but faded rash with fine scales. His pulse, temperature, and respiration were normal. Four days later he had anasarca and fever. Blood casts and albumin were found in the urine. He was therefore transferred to the medical side as a case of acute nephritis due to carbolic. He recovered in a few days.

The success in this case was so dramatic and complete that it should have been a stimulus for me to go on with the treatment, but I could not help being afraid of some unforeseen calamities, the possibilities being injury to the nerve roots and cells, aseptic meningitis which might leave adhesions in the theca, and late results, such as impairment of brain functions and weakness and paralysis due to impairment of the central nervous system. Above all these, acute nephritis might not end so happily as in the first case.

I therefore turned back to antitetanic serum, but now with larger doses intrathecally and in some cases intravenously as well. After five years of despair I gave up the serum treatment and stared ruefully at the 1 in 400 solution of carbolic once more. In the next case a smaller dose was tried and a second dose had to be given.

CASE 2.—A schoolboy of 19 had had a fall on the football field. On admission, on March 5th, 1929, it was found that he had a number of small ulcers on both knees; the jaws and back were stiff, and painful spasms occurred at hourly intervals; he also complained of headache. He was given 15 c.cm. of 1 in 400 carbolic in normal saline intrathecally, but did not appear any better. A second injection of 15 c.cm. was given the next day. Spasms then decreased and disappeared in 48 hours. Recovery was slow. The patient seemed dazed for four or five days after the second injection. The urine was found normal throughout the illness. The cerebro-spinal fluid withdrawn by the second lumbar puncture was turbid and contained numerous leucocytes.

(For nine months after this I had not a single case of tetanus, though my two colleagues had four or five cases between them.)

CASE 3.—A girl of 12 was admitted on Jan. 26th, 1930, with severe symptoms: clenched teeth, almost continuous spasms, and failing heart, within 24 hours of the onset. She was given 20 c.cm. of carbolic solution intrathecally under chloroform, but little hope for recovery was entertained, and she died 12 hours later.

Failure of the treatment in this case put much doubt in my mind as to its utility, and this accounts for the irregularity of treatment in the next case. I thought it was possible that the solution entered a vein in Case 1 and that the recovery might have been

* Read before the Eighth Congress of the Far Eastern Association of Tropical Medicine, Bangkok, Siam, Dec. 9th to 12th, 1930.

due to an intravenous instead of an intrathecal injection. As a result of my bewildered thought, 1 in 400 carbolic was tried intravenously in the next case.

CASE 4.—A Hindu, 22 years of age, was admitted on March 21st, 1930, with four days' spasm after wounds on knee and elbow. On examination he could open his teeth one fingers-breadth, the recti were hard, and opisthotonos was present. Painful spasms occurred every five to ten minutes. I gave him 10 c.cm. of 1 in 400 carbolic in normal saline intravenously at 3 P.M., and the same amount again at 10 P.M. The next morning 15 c.cm. were again given intravenously. As he appeared worse, 9000 units of antitetanic serum were given intravenously. On the third and fourth days he seemed recovering, but he became worse on the fifth day, when the same amount of serum was again given intravenously. This was repeated on the sixth day. On the seventh day the patient appeared very ill, and 48 c.cm. of carbolic solution were given intrathecally; this was immediately followed by a rise of temperature and headache. On the eighth day the spasms disappeared, but tonic opisthotonos remained for four days afterwards. I believe the opisthotonos was produced by irritation of motor nerve roots by carbolic. He recovered fully and was discharged from hospital 15 days after admission.

CASE 5.—A girl of 15 was admitted on March 27th, 1930, with severe symptoms: clenched teeth, continuous spasms, and failing heart. The first clonic spasm had been felt 24 hours earlier. No hope of recovery was entertained, but 20 c.cm. of carbolic solution were administered intrathecally under chloroform. The patient died ten or 12 hours later.

CASE 6.—A patient of 17 was admitted on April 18th, 1930, with partial lockjaw and general spasm of five days' duration after a nail-prick on one palm which had healed. On examination, he could separate his teeth one and a half fingers-breadth; his back was rigid and he had clonic spasms at uncertain intervals. His pulse-rate was 80–90, and his temperature 38° C. He was able to pass urine naturally.

The officer on duty gave 4500 units of antitetanic serum subcutaneously and 3 c.cm. of 2 per cent. carbolic intramuscularly. On April 19th I saw the patient at 10 A.M., when clonic spasms were occurring every five to ten minutes and he could separate his teeth only one fingers-breadth. At 11 A.M. 40 c.cm. of 1 in 400 carbolic in normal saline were given intrathecally under chloroform, after withdrawal of the same amount of cerebro-spinal fluid under its own pressure. The foot of the bed was raised for two hours. The patient perspired freely, complained of heat, and was restless. The temperature rose to 38·5° C. and the pulse-rate to 100–104. He calmed down at the end of four or five hours and fell asleep. On April 20th he appeared better. He could open his mouth more, and clonic spasms were absent, though his back was slightly rigid. On the 22nd he was well. He walked about with a rigid back and neck with a certain amount of torticollis. On the 23rd the temperature was 39° C. and the pulse-rate 90–100. A scarlet rash appeared on the front of both thighs, the shins, the anterior surface of the forearms, and the lower abdomen. Examination of the urine showed granular and blood casts, red blood cells, and transitional epithelial cells—a picture of acute nephritis and pyelitis. He was put on carbohydrate diet, mainly of wet-boiled rice. On the 24th he appeared better though his back was still rigid. On the 27th the temperature, respiration, and pulse-rate came down to normal. The back was still rigid. On the 29th the urine was normal. On the 30th he was well and discharged from hospital.

He had been able to take food and pass urine and fæces naturally throughout the illness.

CASE 7.—A boy of 6 was admitted on June 2nd, 1930, for bladder stone, and operated upon on June 7th, when a stone was removed through a suprapubic incision. The notes were as follows:—

June 13th: Catheter removed from urethra. Urine contained pus and overflowed through suprapubic opening. 15th: Slight jerks of limbs noticed by father of patient in the evening but not told to the nurse on duty. 16th: Back arched, abdominal wall rigid. Distension and constipation present. Mouth opened fully. No contraction of facial muscles. Tetanus was diagnosed on the ground of the presence of tonic and clonic contractions of the back and legs. At 2.30 P.M., 8 c.cm. of 1 in 400 carbolic in normal saline were injected intrathecally under chloroform. At this moment the patient was observed to have jaundice and a pulse-rate of 112, but no rise of temperature. On June 17th the jaws were closed; the teeth opened two fingers-breadth at most. The spasms were worse. Twelve c.cm. of carbolic solution were administered intrathecally. On the 18th the patient was worse and 20 c.cm. of carbolic solution were given intrathecally. The spasms were less in frequency and severity. The legs were flaccid, the back was slightly rigid, and the teeth clenched; risus sardonicus was present but tonic in character, and the eyelids were closed tightly. The temperature was 39·5° C., and pulse-rate 120–130, and the respiration-rate 36–40. He was given 200 c.cm. of 5 per cent. glucose subcutaneously on account of acidosis. On the 20th he appeared better in the morning. Clonic spasms were slight and appeared at long intervals, but the teeth were always clenched. Coma supervened in the afternoon and death at 10 P.M. The morning urine showed pus cells but no blood or casts.

At autopsy on June 21st congestion of the brain was found but no visible change in the pons or medulla. The right kidney was congested, with scattered spots of pus. The left kidney was small and showed pyonephrosis. Microscopic sections of the medulla and pons showed no changes.

CASE 8.—A boy, 11 years of age, was admitted on July 8th, 1930, with lockjaw, stiffness in the back and abdomen, and painful spasms. He was able to open his mouth to one and a half fingers-breadth. The temperature was 36° C., the pulse-rate 74, and the respiration-rate 24. He had a wound on the shin 2 by 3 cm. due to broken wood (June 25th). The day before admission he felt stiff in the lower chest and came to the out-patient department. He was advised to stay in hospital but did not come again until the next afternoon. He was given 20 c.cm. of 1 in 400 carbolic in normal saline intrathecally under chloroform and the wound was scraped. The foot of the bed was raised for an hour and a half. Syrup of chloral, one drachm four times a day, was ordered. A few hours after the injection the temperature was 39° C., the pulse-rate 120, and the respiration-rate 30.

On July 9th, at 8.30 A.M. there were no spasms. The temperature was 38° C., the pulse-rate 120, and the respiration-rate 30. His back and legs were rigid, and he was thirsty and restless. His jaws were closed. The urine contained acetone but no albumin, sugar, or cells. At 4 P.M. the back and legs were less rigid and the jaws opened one fingers-breadth. There were no spasms and the patient felt well and said he had no more pain. On July 10th the back was arched. The jaws opened one fingers-dreadth. There were no spasms, and the limbs were relaxed. The eyelids were slightly contracted. The temperature was 36·7° C., the pulse-rate 100, and the respiration-rate 28.

The jaws and legs remained stiff and arched for many days, though the general condition showed that the patient had recovered. Stiffness disappeared slowly and not without anxiety. Electrical massage was given for 10 days, after which recovery was complete. The patient was allowed to run about but was kept in hospital for observation for three weeks. There is no doubt that the stiffness was due to irritation of motor nerve roots by the carbolic. Frequent examinations of the urine did not show any inflammation of the kidneys, and carbolic was not detected when the liquor ferri perchloridi test was employed.

CASE 9, a chauffeur of 25 was admitted on July 14th, 1930, having had a cut from a table-knife 10 days before. The wound had healed, but six days before had reopened when he was washing his car. On July 13th he had a very painful contraction of the arm. On the 14th I was called to see him at 9 P.M. He was having an attack of painful spasm in the limbs and trunk, which had begun an hour earlier. His right forearm was swollen, his wrist was flexed, and the flexor muscles of the forearm stood up hard. There was a small suppurating wound on the outer side of the wrist. The jaws were not stiff. He was shaking with violent pain. I administered an injection of morphia at once, which gave immediate relief. The general spasm disappeared but the right forearm remained contracted and painful. There was some stiffness in the left arm. The patient was taken to hospital, and at 10 P.M. 30 c.cm. of 1 in 400 carbolic were given intrathecally through a lumbar puncture without chloroform, for he could bend his back. The extrathecal portion of the path of the trocar was preliminarily anæsthetised with 1 c.cm. of 0·5 per cent. novocain.

On July 15th the patient complained of a slight headache during the night but slept fairly well. The erector spinæ stood up slightly but no stiffness was complained of. At 4 P.M. he had another painful attack of generalised spasm for an hour, which passed off after a drachm of syrup of chloral. It was lucky for the patient that I was out, otherwise I might have given him a second dose of carbolic, which would have been unnecessary and perhaps harmful. On July 16th the patient felt well and had slept well. The wrist was still flexed but without pain. Silver colloid was injected intramuscularly on account of the cellulitis of the forearm. On the 17th he felt well. The wrist was no longer flexed. The forearm was still swollen but the inflammation had receded. The wound had nearly healed. On the 18th he was discharged with a swollen but painless forearm. He reported himself well a few days later.

CASE 10.—On Sept. 13th, 1930, a patient of 20 slipped when jumping off a tramcar and his right foot was crushed by one of the wheels. He was taken to the Central Hospital, where saline and 1500 units of antitetanic serum were given subcutaneously. Amputation of the foot was advised, but the patient refused. On Sept. 17th he was admitted into the King Chulalongkorn Memorial Hospital with a foul wound and a gangrenous limb. He had been treated at home with a poultice of Chinese herbs, which generally contains many kinds of pathogenic micro-organisms. On Sept. 18th Syme's amputation was performed under stovaine. On Sept. 21st I was asked to see the patient, who had developed lockjaw. The sister of the ward had noticed the morning before that he had some difficulty in opening his mouth. When I saw him (9 A.M.) his jaws were stiff and would open only a little. The muscles of the abdomen, chest, back, and neck were contracted tonically, but there were no clonic spasms, nor had there been any. The patient said that he had no pain but felt stiff all over. His pulse was regular and strong, with a rate of 100 per minute, but on auscultation of the heart the first sound at the apex was strong, and the second sound hardly audible. Breathing was short and laboured. The wound was gangrenous, with acute cellulitis spreading to below the knee. The temperature was 37·2° C.

I here made a mistake in thinking that it was an early case, as he had no clonic spasms. It was probable that the manifestation of the disease was modified by the previous injection of serum. I put him under chloroform and made a lumbar puncture, keeping in mind the possibility of acute meningitis after an intrathecal injection (in this case, of stovaine). The cerebro-spinal fluid, however, was clear, and I injected 35 c.cm. of 1 in 400 carbolic in normal saline into the theca. At 8·30 P.M. the neck and back were less rigid, the teeth were clenched, clonic spasms were absent, the respiration was short and laboured, and the heart was failing with the second sound inaudible. He died at 4·30 A.M.

CASE 11.—A man, aged 57, was admitted on Oct. 10th, 1930, for painful spasms of the back. He had had a prick from a splinter on his finger on Sept. 20th, followed by suppuration of the whole finger, leaving a sinus. Local spasm of the finger and rigidity of the back had been present for four days. Clonic painful spasms of the back began about 5 or 6 P.M. on Oct. 9th.

On examination on Oct. 11th the back muscles were rigid, and the jaws stiff, opening to two fingers-breadth at the most. At 2.30 P.M. he was given 40 c.cm. of 1 in 400 carbolic intrathecally under chloroform, after withdrawal of 15 c.cm. of cerebro-spinal fluid. He slept for two hours afterwards. At 8 P.M. he had a severe rigor, and his temperature was 41° C., his pulse-rate 124, and his respiration-rate 30. He had headache, but his back was no longer stiff, and the jaws could open widely. On Oct. 12th he had occasional spasms from 2 A.M. to 9.30 A.M. The temperature had come down almost to normal. He could open his mouth widely and move his lower jaw freely. On Oct. 13th he was free from spasms, but somewhat drowsy, and was startled when touched. His temperature was 38° C., and his pulse-rate and respiration good. On the 14th they were all normal, and there were no spasms. The back was slightly rigid and the patient complained of stiffness all over this body. The jaws opened and moved with ease.

On Oct. 20th round scarlet macules, 1 mm. in diameter, appeared on the exposed parts of the body. On the 24th the back was no longer rigid. On the 26th the feet were œdematous. On the 28th the rash had disappeared, but there was œdema of both legs. On Nov. 4th there was œdema of both legs and ascites, and frequent painful micturition. On the 5th the patient left hospital, in spite of persuasion to remain.

Examination of the urine at frequent intervals from the day of admission showed chronic infection of the bladder. On rectal examination the prostate was not found enlarged. A stricture of the urethra was present, admitting only a small-sized catheter and that with pain. No definite impairment of the heart was detected.

CASE 12.—A married woman, aged 26, admitted for painful contraction of both arms and hands on Oct. 13th, 1930, was found to have a suppurating wound above the right heel which she had received the day before. The right calf muscle was contracted but without pain. Both arms were flexed at the elbows and wrists. The hands were closed tightly. The spasms of the upper extremities were continuous and most painful, but somewhat relieved by 0·015 g. of morphine given at once subcutaneously. Forty-five minutes after admission 35 c.cm. of 1 in 400 carbolic was given intrathecally. The temperature rose to 40° C. within four hours and then gradually declined to normal the next morning. Headache and vomiting followed the injection and passed off on the third day. The spasm of the upper extremities and the rigidity of the calf muscle disappeared a few hours after the administration of carbolic.

On Oct. 20th pink, discrete, round macules, 1–2 mm. in diameter, slightly itchy, appeared on the trunk and thighs. The patient again vomited. The temperature was 37·2° C., the pulse and respiration normal. Headache was present. Ophthalmic examination revealed no papilloedema. The rash reached its height on the third day, when the whole body, including the face, was covered with a scarlatiniform rash. On the seventh day it faded, leaving a general discoloration of the skin with slight scales on the face. The general condition of the patient was good, though she complained of a feverish and nauseated feeling and vomited occasionally. On the ninth day the whole body was covered with scales and flat vesicles. These were dressed with baby talcum. On the eleventh day all the vesicles had burst, leaving dry scales which were easily washed off. The face had suffered as much as the body. The patient was discharged well on Nov. 10th. The urine was normal throughout the illness.

CASE 13 (*Tetanus neonatorum*).—A male baby, 8 days old, was admitted on Nov. 17th, 1930, because the mother found the day before admission that it sucked with difficulty, bit the nipple, and seemed stiff in its jaws. The temperature was 38° C. The jaws opened slightly, and the back was stiff and the abdominal wall rigid and protuberant with distension of the bowels. Frequent motions containing mucus, blood, and living *Amœba hystolytica* were passed. The umbilicus was septic. He was given 1/12th of a grain of emetine intramuscularly. On Nov. 18th he passed two motions, both hard and small in volume. The jaws opened slightly, but he would not suck, and feeding was suspended for 24 hours. The back was arched and the legs and abdominal wall were rigid. General clonic spasm was present at intervals, but the baby slept between spasms. At 4 P.M. he was given carbolic 1 in 400, 3 c.cm. intrathecally under chloroform. (Some difficulty was encountered in performing the lumbar puncture.) At 12 P.M. the temperature was 40° C. with profuse perspiration. On Nov. 19th at 8 A.M. the temperature was 37·2° C., and there was dyspnœa. The baby would not suck, but was able to swallow when fed artificially. At 12 P.M. the temperature was 40° C., and at 4 P.M. it was 38°. Clonic spasms occurred at intervals, but were less in severity. He slept between spasms and his jaws opened more widely. The motions were good. The back was rigid and the legs stiff.

Scarlet macules, 1 mm. in diameter, appeared on the back of the hands and lower half of the forearms, where the skin appeared paler than elsewhere. The lips were dry, and the tongue clean. On Nov. 21st he appeared thin, but the skin was not shrunken, and there were no spasms. The back and legs were slightly rigid. He sucked his mother's breasts. The rash faded, and on the 23rd had disappeared. There were no spasms or rigidity of the back or legs, but he was constipated. He was discharged from hospital.

CASE 14.—A married woman, aged 60, was admitted on Dec. 3rd, 1930, with lockjaw and stiff back after a nail prick on the left sole 20 days before. The wound had healed. The back muscles were contracted so that a hand passed easily between the patient's loin and the bed. The left erector spinæ was more rigid than the right. Her mouth could open, but with difficulty. Risus sardonicus was present. She could not take solid food, and swallowed liquids with some pain in the back of the throat. There were slight spasm at long intervals. One drachm of syrup of chloral thrice daily was ordered. The patient seemed better in the afternoon and was able to swallow food. 10 c.cm. of antitetanic serum was given subcutaneously (to conform to the patient's wish and allay her anxiety). On Dec. 4th she was able to swallow. Spasms were more frequent—twice in an hour and on handling—and the back was stiff, and the jaws stiffer than before. She was given 30 c.cm. of 1 in 400 carbolic solution intrathecally under chloroform at 10.10 A.M. after withdrawal of 30 c.cm. of fluid. At 3.45 P.M. she was restless and hot; her head ached, and her temperature was 38·5° C. She was given one Veramon tablet (grs. 7) every three hours until the headache was relieved. On Dec. 5th the morning temperature was 37·7° C. and the pulse-rate 100. She was sleepy but her headache had gone. The back was stiff, the mouth opened widely, risus sardonicus was present, and she was startled when touched. At 9.30 P.M. clonic spasms had disappeared, and pulse and temperature were normal. On the 6th she slept well. The tongue was red and raw. On the 10th the temperature, pulse, and respiration were normal, and the patient felt well. The loin touched the bed but was still stiff. The calves and backs of the thighs were slightly stiff. The ankles were ventriflexed and the toes flexed. On the 13th she was well, and able to sit up. The left soleus muscle was slightly rigid. On the 14th she was discharged from hospital.

Urine examination was made daily and found normal.

I visited the patient at her home two weeks later and found her well and happy and able to walk upstairs unaided, though the calf muscles and erectores spinæ were still slightly stiff.

Summary.

Dosage.—30–40 c.cm. in adults; 12–20 c.cm. in children of about 12, adjusted according to the severity of individual cases. The doses in this series of 14 cases were too high, except in Case 2.

SEQUELÆ.

1. Rigidity of the back muscles is often present, due to irritation of the motor nerve roots, from the first to the seventh day of the injection. The decrease or disappearance of lockjaw is an indication of amelioration, though it is possible that carbolic may cause lockjaw through irritation of the fifth cranial nerve, when the seventh nerve will be simultaneously stimulated, as shown in Case 8 by slight tonic contraction of the facial and orbicularis oculi muscles—a tonic risus sardonicus.

2. A rash, varying in character and intensity, appears between the first and the seventh days and lasts from 4 to 14 days. It abates without treatment and should cause no anxiety. It may be due to overdose, but is probably produced by the elimination of carbolic by way of the skin.

3. Acute nephritis was present in Cases 1, 6, and 11, no doubt due to elimination of carbolic through the kidneys. This treatment should therefore not be given to patients with chronic renal disease, especially old people who have some impairment of the kidneys. However, Case 14, 60 years of age, got well without this complication.

There were no late complications of the nervous system. The older cases, 2, 5, 8, 9, were traced to their homes in November, 1930. The school-boy (Case 2) had passed his intermediate school examination. The Hindu (Case 5) was busy collecting grass for his cows and going his morning rounds in his cart with milk-bottles. The boy of 11 years in Case 8 had become an errand-boy. The chauffeur (Case 9) was driving his master prince to and from the barracks every day.

The advantages of carbolic over serum are: (1) it is more certain in action; (2) one injection suffices; (3) the cost is almost nil.

The only disadvantage is the danger in chronic kidney disease.

Conclusion.

Though the number of cases treated is as yet small, I venture to form an opinion that carbolic acid given intrathecally is a specific remedy against tetanus. Out of 14 cases treated four died, but these were severe cases, having reached the final stage of cardiac and respiratory failure, except Case 7 which, I think, died from uræmia due to the already infected kidneys rather than from tetanus. There seems to be little doubt that the ten patients that recovered owed their lives to the carbolic treatment, for they were not of the mild variety that might recover spontaneously. Any amount of serum which had been given inadvertently was not sufficient to effect a cure. Besides, in no case had it been given intrathecally. The intrathecal carbolic treatment has been given without selection to all cases of tetanus admitted into the King Chulalongkorn Memorial Hospital, since Jan. 26th, 1930 (Case 3), up to the present time (end of 1930), with the exception of two moribund cases of tetanus neonatorum. The recovery in Case 13 (tetanus neonatorum) was remarkable.

TREATMENT OF INTESTINAL OBSTRUCTION.

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It has been suggested that operation for the relief of small-bowel obstruction should be delayed until dehydration has been overcome, but it is necessary to review very carefully all the information available before making such a serious change. It is generally recognised that the number of hours elapsing between the onset of symptoms and the relief of small-bowel obstruction is directly proportional to the mortality percentage. Thus there will be a mortality-rate of about 30 per cent. among patients who have had symptoms of obstruction for 30 hours. While this is a rough and somewhat inaccurate basis for prognosis, a review of published mortality statistics shows that it is sufficiently correct for practical purposes. If each hour's delay increases the risk of death by 1 per cent. it is evident that operation must not be delayed on any account unless the new therapeutic procedure can guarantee a lowered mortality in spite of the delay.

As a result of the exhaustive study of small-bowel obstruction which has been carried on, mostly in America, during the past 15 years, it is now clearly recognised that such obstructions fall into two great groups: (1) simple obstruction without impairment of the blood-supply, and (2) strangulated obstruction with impairment of the blood-supply.

Most studies of small-bowel obstruction have been concerned only with the former group, and death has been definitely shown to be due in these cases to dehydration. In the strangulated type the vitality of the bowel wall is rapidly impaired, gangrene results, and death occurs through toxæmia or through perforation and peritonitis—as a rule, before there are very marked changes in the levels of the blood-chlorides, carbon dioxide combining power and total non-protein nitrogen, and before dehydration can assume a fatal proportion.

Dehydration in Simple Obstruction.

In simple obstruction, as carried out experimentally, a different picture is seen. Here the few circulatory changes in the bowel wall do not lead to the rapid onset of gangrene. Toxæmia due to these factors plays a much less important rôle. The persistent loss of gastro-intestinal secretion so deprives the body of its normal ionic content, chiefly derived from sodium chloride, that water cannot be retained in the body and death ensues owing to dehydration.

Normally, several thousand cubic centimetres of gastro-intestinal secretions, rich in sodium and chloride, are poured into the stomach and upper part of the small bowel every 24 hours. These fluids play their part in the digestion of food materials and are reabsorbed in the lower part of the bowel. As fluid in the stomach and bowel is outside the body proper it is lost to the body until it is reabsorbed. By the constant secretion and reabsorption of this great volume of fluid and salt, the normal fluid metabolism of the body is maintained. The amount of water imbibed only replaces that lost through perspiration, respiration, and excretions.

When the small bowel is obstructed this endless chain of secretion and reabsorption is broken. The secretion continues to be poured out, but it

cannot pass beyond the obstruction to be reabsorbed. The bowel responds to the blockage with hyperperistalsis. The fluid is forced against the obstruction and a reverse current is formed, which carries the fluid backwards and finally into the stomach, which fills up and eventually overflows. This causes the regurgitant type of vomiting so usual in the later stages of obstruction, consisting of foul-smelling greenish or yellowish material. As these secretions collect and stagnate, aerobic and anaerobic bacteria rapidly grow, fermentation occurs, and so gas collects, increasing the distension. It is this distension by gas and fluid which makes X ray diagnosis so valuable in these cases. If a patient suspected of having intestinal obstruction is X rayed in the erect position or lying on the side, and the plate shows a distended small bowel with fluid levels, a diagnosis of intestinal obstruction can be made. The first vomiting which occurs in intestinal obstruction is reflex and empties the stomach. After this the vomitus consists of gastro-intestinal secretions rich in sodium chloride. As reabsorption of this sodium chloride is prevented, the sum total of this salt in the body progressively diminishes. Any reserve stores which may exist in the skin are soon exhausted.

It is generally accepted that the total fluid in the body is maintained by its total ionic content which, in the case of blood-plasma and interstitial fluid, consists practically wholly of ionised sodium chloride. With the loss of sodium chloride by vomiting the ability of the body to maintain its fluid is likewise lost and dehydration rapidly ensues. It is often supposed that the progressive fall of plasma chloride, so typical of intestinal obstruction, is the result of this dehydration and shows the degree of dehydration present. This is not strictly accurate. The chloride is lost, as hydrochloric acid, in the stomach secretion. This chloride radical is replaced by CO_2 radical in the blood-plasma. There is consequently a marked increase in the carbon dioxide combining power in the plasma, giving a severe alkalosis. The total ionic content of the plasma, however, is not necessarily changed. It is thus evident that both acid and base radicals must be lost from the blood-plasma before the total ionic content falls, and it is unable to retain its normal amount of fluid.

Gamble and Ross [1] suggested that dehydration is due to the loss of sodium. Sodium determinations on the blood-plasma show a slight but progressive diminution in these cases. The percentage of sodium falls, however, because the total ionic content has been increased in other directions. The total non-protein nitrogen and urea nitrogen increase greatly, and this increase may be, to some extent, ionised, thus increasing the total ionic content. If no free hydrochloric acid were lost in the stomach secretion and waste products did not accumulate in the blood, it would be quite possible to have a very marked degree of dehydration with no change in sodium and chloride blood-plasma percentage determinations. If, however, the total sodium chloride in the plasma of the body could be estimated, a very marked decrease would be shown. As I have demonstrated elsewhere,[2] the total ionic content of intracellular fluid is made up largely of potassium and phosphoric ions, which are not lost in the gastro-intestinal secretion, and thus the intracellular fluid is not disturbed in dehydration to any great degree. Dehydration affects mainly the blood-plasma and the interstitial fluid. That this dehydration is the cause of death in simple small-bowel obstruction has been definitely shown by many investigators—Hartwell and Hognet,[3] Haden and Orr,[4] Gamble and McIver,[5] Armour, Mitchell, and Stewart.[6] Animals with complete duodenal obstruction can be kept alive for six weeks or more provided that the lost sodium chloride can be restored and starvation prevented.

Simultaneous Treatment of Dehydration and Obstruction.

As death in simple obstruction is thus definitely caused by dehydration, it is easy to see how the suggestion has arisen that, before the patient is exposed to a serious operation, steps should be taken to overcome dehydration by the intravenous injection of sodium chloride solution. This suggestion ought to be worded differently. By all means give sodium chloride solution, either isotonic or hypertonic, but this procedure should not delay the operation by one minute. It has been shown that dehydration is the cause of death only in simple obstruction. This work has only been carried out experimentally on dogs. The great majority of cases of small-bowel obstruction found at operation are of the strangulated variety. This applies to all those cases caused by herniæ, volvulus, twisted Meckel's diverticulæ, and, as a rule, those arising from adhesions. Furthermore, except in cases where strangulated herniæ can be recognised, it is quite impossible to differentiate between the simple and the strangulated varieties before operation. It is therefore imperative to treat for the more serious possibility—namely, strangulated obstruction. Death in those cases occurs early, before any great degree of dehydration has occurred, and is due to toxæmia. Only early operation will save them.

When discussing the clinical application of experimental findings, consideration must also be given to the important question of whether the results of simple obstruction in dogs are exactly similar, in all the physiological and pathological effects, to those in man. I have found less distension and less marked changes in the bowel walls after obstruction in dogs than is usually present at operation on clinical cases. At operation the human bowel is often greatly distended, very dark purple in colour from prolonged congestion, and very thin. It has been shown that great distension impairs the circulation in the bowel wall by obstructing the venous return. If this be so, it follows that even in simple obstruction in man the factor of toxæmia due to impaired blood-supply of the bowel wall cannot altogether be eliminated. Personally, I do not believe that human beings could be kept alive for a month solely by means of the intravenous injection of salt solution, though dogs can.

A danger which must be recognised in the operative release of a mechanical obstruction is that, with the relief of distension, the venous return is permitted. After several hours of venous stasis there must be a great collection of histamine-like end-products from metabolism and from damaged bowel which are suddenly returned into the circulation. This event must accentuate any symptoms of shock which are already present. I believe this to be the cause of death in those cases of late obstruction which die a few hours after operative interference, although the operation has been relatively simple.

It seems, therefore, self-evident that to delay operation until dehydration can be overcome by means of intravenous saline therapy, checked by observation of the blood chemistry values, would be very unwise. It could only be of use in a very small percentage of cases of simple small-bowel obstruction, and these cases cannot be differentiated from the strangulated variety before operation. The rule of immediate laparotomy for intestinal obstruction

must be adhered to, and it must be constantly borne in mind that the mortality in these cases is directly proportional to the number of hours occurring between onset of symptoms and relief of obstruction. In cases where the diagnosis is in doubt, the surgeon should never spend time in "masterly inactivity" or in observation of the further progress. A simple antero-posterior X ray plate will confirm the diagnosis in ten minutes. The patient should proceed directly from the X ray room to the operating room, where 1000 c.cm. of normal sodium chloride solution can be injected intravenously after the anæsthetic has started, while the patient is being prepared for the operation. The injection can, of course, be continued during the operation. If desired, 15 g. of sodium chloride may be added to the normal saline solution to hasten the return of blood chlorides to normal. Such a procedure will reduce the unfortunately large and, I believe, unnecessary mortality which occurs in so many hospitals from small-bowel intestinal obstruction.

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CLINICAL AND LABORATORY NOTES

BLOOD-PLATELETS IN PERNICIOUS ANÆMIA.

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OBSERVATIONS upon the blood-platelets in pernicious anæmia are scanty and to some extent contradictory. As the result of the study of the blood in cases under treatment with liver one of us (S. C. D.) gained the impression that these elements of the blood were scanty during the relapse phase but tended to increase in numbers with improvement of the blood picture. This impression was placed upon record[1] together with the statement that the platelets may in cases of pernicious anæmia be so low as 150,000 per c.mm. This statement was not based upon careful and systematic observation, which since then has shown that during the relapse phase the platelets occur in far fewer numbers than then stated, and, furthermore, that they actually do increase to normal under liver therapy.

Case Histories.

CASE 1.—Female, aged 36. Admitted Oct. 15th, 1930, with history of weakness and lassitude extending over two years; more recently tingling, numbness, and loss of power in legs, anorexia, and loss of weight. Occasional attacks of diarrhœa. On admission a pale, asthenic, and rather wasted subject, mentally very depressed; tendon reflexes present and normal in legs and arms, plantar reflex flexor; considerable disturbance of sensation in legs and to a less extent in arms; almost complete loss of power in right leg and movement of left leg very much impaired.

A fractional test-meal taken shortly after admission showed complete absence of free hydrochloric acid; this examination was repeated two weeks after the commencement of treatment having been immediately preceded by the injection of half a milligramme of histamine; free HCl remained absent. The blood-picture at the commencement of treatment was: hæmoglobin (Hb.), 38 per cent; red cells, 1,510,000 per c.mm.; white cells, 3400; colour-index, 1·26; volume-index, 1·5. The percentages of white cells were: polymorphs, 57; lymphocytes, 41; monocytes, 2. No eosinophils or basophils were seen. There was some anisocytosis and poikilocytosis of red cells, with many nucleated red cells. The mean diameter of red cells (halo method) was 8·3μ. The van den Bergh reaction was direct negative; indirect positive, and the bilirubin 14 mg. per litre.

[1] Liver in the Treatment of Pernicious and other Anæmias, London, 1930.

Treatment was carried out with a commercial liver extract and whole liver on alternate days; in addition dilute HCl to the extent of 20 minims four times daily was given, before meals. The first observation on the platelets was made on Oct. 28th, five days from the commencement of liver treatment. They were found to number 91,000 per c.mm. The blood at this time showed the height of the reticulocyte crisis, the reticulocytes forming 11·6 per cent. of the red cells, a total of 211,120 per c.mm. Four days later the platelets had risen to 293,000 per c.mm. Thereafter their numbers fluctuated considerably but never again fell so low as on the first examination. The behaviour of platelets, red cells, and reticulocytes was as follows:—

	Red cells (in thousands).	Reticulocytes. Total and per cent.	Platelets.
Oct. 28th	1,820	211,120 (5·0)	91,000
,, 31st	1,820	—	293,720
Nov. 4th	2,010	274,230 (4·6)	118,590
,, 11th	2,970	None seen.	187,110
,, 18th	3,490	,, ,,	320,000

CASE 2.—Female, aged 55. History of anorexia and constipation with pain in lumbar region for past seven years. Loss of weight last two years, vomiting last two weeks. Admitted to surgical ward as case of cholecystitis. Jaundiced, anæmic. The blood-picture on March 13th was Hb., 38 per cent.; red cells, 1,370,000 per c.mm.; white cells, 10,000 per c.mm.; and colour-index, 1·42. The percentages of white cells were polymorphs, 39; lymphocytes, 55; and monocytes, 6; no eosinophils or basophils were seen. There was considerable anisocytosis of red cells and the mean diameter of red cells was 8·5μ.

Fractional test-meal showed complete absence of free HCl from all specimens. The progress of the case was as follows:—

	Red cells (in thousands).	Reticulocytes. Total and per cent.	Platelets.
March 13th	1,370	41,000 (3·0)	124,600
,, 20th	1,920	48,000 (2·5)	132,400
,, 25th	2,410	16,000 (0·7)	175,930
	Discharged from hospital.		
Sept. 15th	4,250	Absent.	243,256

CASE 3.—Female, aged 63. History of weakness and shortness of breath for three months; numbness and weakness of legs for past month. On admission skin lemon-yellow in colour; spleen palpable, no tendon reflexes obtained in any limb. Plantar reflex flexor.

The blood-picture on Feb. 4th, 1930, at the commencement of treatment was: Hb., 34 per cent; red cells, 1,260,000 per c.mm.; white cells, 2100; colour-index, 1·35; reticulocytes, 1·3 per cent. of red cells; and platelets, 22,800 per c.mm. The percentages of white cells were: polymorphs, 47; lymphocytes, 45; monocytes, 5; and eosinophils, 3. No basophils were seen. There was marked anisocytosis and poikilocytosis of red cells and the van den Bergh reaction was negative direct, indirect positive, and the bilirubin 45 mg. per litre. A fractional test-meal showed complete absence of free HCl.

The patient was treated for two weeks on a German preparation of dried stomach upon which she made no progress whatever. At the end of this time the red cells remained at their original level, there had been no increase in the reticulocytes, and the platelets had fallen to 43,000 per c.mm. On Feb. 19th the patient was put on Ventriculin (Parke Davis), 10 teaspoonfuls daily. The subsequent

behaviour of the red cells, reticulocytes, and platelets was as follows:—

	Red cells (in thousands).	Reticulocytes. Total and per cent.	Platelets.
Feb. 20th	1,440	15,800 (1·1)	51,840
,, 25th	1,370	177,100 (13·0)	36,520
,, 28th	1,870	177,650 (9·5)	22,440
March 4th	2,120	—	129,320
,, 10th	2,270	47,670 (2·1)	115,770
,, 14th	2,630	21,000 (0·8)	99,940
,, 19th	2,720	2,720 (0·1)	97,920
,, 25th	2,770	None seen.	121,880
,, 28th	3,040	,, ,,	100,320
May 13th	3,740	,, ,,	119,680
,, 27th	3,940	,, ,,	102,440

CASE 4.—Male, aged 67. History of weakness, breathlessness, and increasing pallor for three months; nausea but no vomiting, tingling, and numbness of fingers. On admission on Sept. 9th, 1930, he was strange in manner; the liver was palpable two fingers' breadths below the costal margin, the spleen just palpable. The blood-picture was: Hb., 14 per cent.; red cells, 660,000 per c.mm.; white cells, 3700; colour-index, 1·08; and volume-index, 1·06. The percentages of white cells were: polymorphs, 67; lymphocytes, 32; and monocytes, 1. No eosinophils or basophils were seen. There was slight anisocytosis of red cells. The mean diameter of red cells was 9 μ (approx.). The van den Bergh reaction was delayed positive direct and the bilirubin 45 mg. per litre.

Treatment was initiated with 2 oz. of a commercial liver preparation daily, together with dilute HCl by mouth. The behaviour of the red cells, reticulocytes, and platelets was as follows:—

	Red cells (in thousands).	Reticulocytes. Total and per cent.	Platelets.
Sept. 11th	660	1,320 (0·2)	29,040
	Transfusion 12 oz. citrated blood.		
,, 15th	1,010	34,340 (3·4)	40,400
,, 19th	1,000	76,000 (7·6)	38,000
,, 23rd	1,450	—	114,550
,, 26th	1,810	128,660 (6·0)	135,750
,, 30th	1,960	52,020 (2·7)	119,560
Oct. 3rd	1,770	None seen.	198,240
,, 7th	2,600	,, ,,	261,800
,, 15th	3,090	,, ,,	174,610

CASE 5.—Female, aged 61. Admitted July 10th, 1930. One year ago begun to feel ill and weak. In January, 1930, she had taken to her bed and had been there ever since. For some months past vomiting had been frequent; there had been epigastric pain made worse by taking food and the skin had been somewhat jaundiced. The condition had been diagnosed as carcinoma of the stomach. On admission the patient appeared pale and jaundiced; spleen not palpable, pain on pressure in epigastrium; tongue smooth and glossy. There were no very definite signs of disturbance of the central nervous system; some œdema of the feet. Treatment was commenced by commercial liver extract two ounces daily together with HCl. The blood-picture at commencement of treatment was: Hb., 30; red cells, 870,000 per c.mm.; white cells, 4400; and colour-index, 1·73. The percentages of white cells were: polymorphs, 42; lymphocytes, 46; monocytes, 7; eosinophils, 3; and basophils, 2. There was slight poikilocytosis and anisocytosis of red cells. The mean diameter of red cells was 9 μ (approx.) The van den Bergh reaction was negative direct, positive indirect, and the bilirubin 34 mg. per litre.

	Red cells (in thousands).	Reticulocytes. Total and per cent.	Platelets.
July 11th	870	60,900 (7·0)	17,400
	Transfusion 12 oz. citrated blood.		
,, 14th	1,150	112,700 (9·8)	34,500
,, 17th	1,540	236,400 (16·0)	67,700
,, 23rd	2,300	151,800 (6·6)	533,600
,, 29th	2,800	25,300 (0·9)	293,600
Aug. 5th	2,890	5,780 (0·2)	225,190
,, 12th	3,520	None seen.	207,680
,, 19th	3,740	,, ,,	250,580
Sept. 29th	5,860	Not examined.	Not examined.

On two occasions between July 19th and 22nd the patient complained of severe epigastric pain, coming on suddenly and lasting for several hours. The second attack was of considerable severity; the onset was sudden and the patient became very collapsed and short of breath; the pulse became feeble and irregular and for some hours the condition gave rise to considerable anxiety. There was no rise of temperature.

At the time the nature of the attacks was not diagnosed; the dyspnœa and collapse were consistent with a lesser degree of pulmonary embolism, and in view of the very high platelet count found on July 23rd, two days after the second attack, it seems in the highest degree probable that both these attacks were due to embolism following upon intravascular clotting due to the thrombocytosis. Several cases both of thrombosis and of pulmonary embolism following upon liver treatment in pernicious anæmia have been placed upon record, and one of us (S. C. D.) has elsewhere hazarded the suggestion that these accidents may be due to an increase in the circulating platelets. Howel Evans[2] has shown that an increase of the platelets above the numbers usually met with may be the precipitating cause of thrombosis and consequently of embolism; the present case would seem to indicate that for this reason such thrombotic accidents may occur in the course of the liver treatment of pernicious anæmia; probably they would best be prevented by not confining the patients too strictly to bed.

CASE 6.—Male, aged 57. Health good until two years ago when he accidentally fractured two ribs on left side. Since that time pain in left side and increasing weakness, for past month tingling and numbness of fingers and toes. On admission pale, not wasted, spleen not palpable, no abnormal physical signs. The blood-picture at commencement of treatment was: Hb., 37 per cent.; red cells, 1,540,000 per c.mm.; white cells, 8100; colour-index, 1·2; and volume-index, 1·6. There was no poikilocytosis or anisocytosis; nucleated red cells were present in fair numbers. The mean diameter of red cells was 8·5 μ (approx.). The van den Bergh reaction was direct negative; indirect very faintly positive. A fractional test-meal showed complete absence of free HCl. The Wassermann reaction was strongly positive.

	Red cells (in thousands).	Reticulocytes. Total and per cent.	Platelets.
Nov. 24th	1,540	13,860 (0·9)	224,840
Dec. 3rd	1,840	58,800 (3·2)	200,000
,, 16th	2,830	None seen.	445,000

No antisyphilitic treatment was adopted while the patient was under observation, it being particularly desired to ascertain whether or not a satisfactory response to liver could be brought about in the presence of a positive Wassermann reaction without such treatment. This proved to be the case.

Discussion.

The above observations serve to demonstrate that in pernicious anæmia in the stage of relapse the platelets are diminished to far below the normal number per c.mm. The lowest count recorded in the series was just over 17,000 per c.mm. in Case 5. It is noteworthy that in spite of this very considerable diminution there was neither in this nor in any other case any tendency towards hæmorrhagic manifestations. Taken into consideration along with the constant leucopenia in the relapse phase of pernicious anæmia these observations offer further proof of the fact which with growing knowledge of the condition becomes increasingly clear that the anæmia of pernicious anæmia is not due simply to destruction of red cells, but is an expression of a morbid state affecting the whole of the hæmatopoietic system.

It further demonstrates the fact that the effect of treatment by liver or desiccated stomach is not confined to the red cell-producing portion of the hæmatopoietic system, but is active on the whole of it. The exact manner in which this effect is brought about is unknown, but the result is to restore to normal the whole, not a part only of the system.

It is a noteworthy fact that the patient showing

[2] Evans, W. Howel: Jour. Path. and Bact., 1928, xxxi., 815.

the lowest number of platelets at the commencement of treatment also showed the most rapid and striking rise. So great was the rise in this case that, as pointed out above, there is reason to believe that it led to a certain degree of intravascular clotting of the blood, with two attacks of pulmonary embolism, fortunately both very mild.

SUMMARY.

1. In the relapse phase of pernicious anæmia the blood-platelets fall to a low level. 2. With improvement of the blood-picture due to treatment by liver or dried stomach the platelets rapidly rise in numbers. 3. This rise in the platelets may give rise to thrombotic accidents.

THE BLOOD-PLATELETS AFTER FRACTURE.

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It has been pointed out by Howel Evans and his co-workers [1] that thrombosis and embolism follow parturition and surgical operations at a time which corresponds to the maximum of the rise in the number of blood-platelets that succeeds these conditions. Thrombosis and embolism tend especially to follow operations which involve the anterior abdominal

Fig. 1.

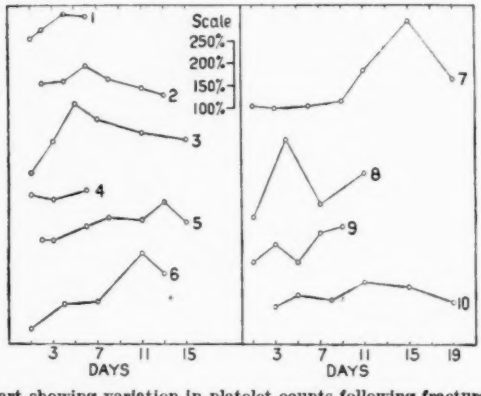


Chart showing variation in platelet counts following fracture in ten cases.

wall, with resulting venous stasis due to diminution of muscular activity and of diaphragmatic respiration. An increase in the number of circulating blood-platelets and venous stasis seem therefore to be important factors in the onset of thrombosis.

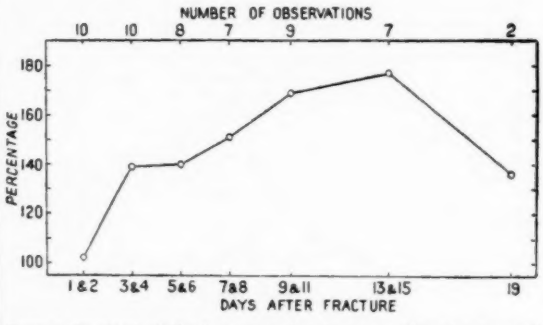
Fracture of the femur is a condition which has a high incidence of pulmonary embolism as a complication (Lister [2]). Its treatment differs from that of most other fractures in that it involves marked immobilisation of the patient, with resulting venous stasis. This suggests that another factor in post-operative thrombosis—an increase in the blood-platelets—may also occur after fracture.

Accordingly, the blood-platelets were studied in a group of ten cases of fracture, which were all simple but not in any other way selected. They consisted of:—

Case.	Age.	Fractured—
1	14	Rib.
2	67	Radius.
3	26	Humerus, radius and ulna.
4	40	Patella.
5	23	Left transverse processes of 3rd and 4th lumbar vertebræ.
6	77	Neck of femur.
7	72	,, ,,
8	42	Right temporal and occipital bones.
9	35	Tibia and fibula.
10	59	Right tibia and fibula, and left tibia.

It was obviously impossible to do platelet counts before the fractures occurred, so the first count done after fracture in each case was used as a basis for comparison and called 100 per cent., subsequent

Fig. 2.



Composite chart of the ten cases showing percentage increase of platelets following fracture.

counts being expressed as a percentage of this figure. In seven cases the first count was done within 24 hours of fracture, in two cases within 48 hours, and in the remaining cases within 72 hours. The results of individual cases are shown in Fig. 1, and a composite result of all the cases has been constructed in Fig. 2.

From these figures it is seen that a definite increase in the blood-platelets occurs after fracture, reaching a maximum between the fourth and the fifteenth days.

This increase resembles so closely those which occur after parturition and surgical operations that it suggests a cause common to them all. These different conditions are all associated with damage to tissues and extravasation of blood, followed by its ultimate absorption, and in this absorption of damaged tissues lies a possible common cause.

JACKSONIAN EPILEPSY TREATED WITH TUBERCULIN.

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In October, 1928, I was asked by Dr. W. G. Orchard to see a girl of 13, who was having right-sided fits, affecting the face and hand, several times a day, followed by a short period of unconsciousness, and affection of speech for half an hour after. She had complained of headaches since July, the fits had begun early in September, at first with a week's interval, but becoming rapidly more frequent. She was a pale, delicate-looking child. There was no apparent weakness of the right arm. Reflexes were exaggerated. The left optic disc was pinker than normal, and the vein large. The right disc was paler, but the vein looked large also. There

[1] Dawbarn, R. Y., Earlam, F., and Evans, W. Howel: Jour. Path. and Bact., 1928, xxxi., 833.

[2] Lister, W. A.: The Lancet, 1927, i., 111.

were no abnormal physical signs in the chest or abdomen.

Pirquet's cutaneous test was found to be positive. I concluded that the epilepsy was probably due to a tuberculous tumour in the cortex, and recommended a weekly injection of tuberculin B.E., beginning with 1/100,000 very slowly increased; also a resting life in the open air as much as possible, and cod-liver oil and malt and a two-minim capsule of creosote three times a day. In January, 1929, the fits were much less severe and less frequent. In April, 1929, the attacks were shorter, and were not followed by aphasia, and they only occurred about once a week. Headache had gone. The child had grown four inches and looked very well. The tuberculin injections were continued. A guaiacol carbonate and potassium iodide mixture was given instead of the creosote, which was causing some indigestion.

I have just seen her again. She is a well-grown, healthy looking girl, and there have been no fits for many months. The only sign left is that, if she gets overtired, she may have a twitching of the right face and tongue. In the past I have successfully treated with tuberculin two other cases of Jacksonian epilepsy, in which the Pirquet reaction was positive, but they were not so severe as this one.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY.

AT a meeting of this section held on May 6th, Mr. C. H. FAGGE being in the chair, a discussion on the surgical treatment of

Simple Ulcers of the Body of the Stomach

was opened by Mr. A. J. WALTON. Of late, said Mr. Walton, there had been a revival in the medical treatment of chronic gastric ulcer, advocated by Dr. F. J. Smith in 1902, and of the claim that all uncomplicated ulcers were capable of being cured by alkalis. It was no doubt true that the majority of these cases lost their symptoms, but the apparent improvement was often no more than the usual period of remission. This treatment had been gradually abandoned owing to the high mortality from hæmorrhage and perforation. The pendulum however had swung too far, operation being performed for ulcers still capable of cure by simpler methods. It should however be remembered that the late end-results of a large series of cases treated medically had never been published, whereas the percentage of cures in operated cases was fairly accurately known. Briefly, the indications for operative treatment were: (1) severe radiating pain as indicating a deep penetrating ulcer; (2) failure of medical treatment to relieve symptoms; (3) history so long as to suggest a fibrous and callous ulcer; (4) recurrence of symptoms after an adequate course of medical treatment; (5) patient's inability to follow suggested lines of treatment; (6) recent or old perforation; (7) severe or repeated mild hæmorrhage; (8) distortion and especially hour-glass deformity; (9) any suggestion of carcinoma. It was becoming generally accepted, he said, that some 10 per cent. of chronic ulcers became carcinomatous. The underlying aim of operation was to bring about certain physiological and mechanical changes which might be produced by entirely different methods. Not long ago gastro-enterostomy was the operation of choice. Its mortality was under 2 per cent., but the safety was largely offset by the risk of persistence of the ulcer. Partial gastrectomy even in expert hands still had considerable mortality and some surgeons had abandoned Polya's operation owing to its danger. Local resection was a much less severe procedure, the mortality in his own cases being 3·6 per cent. The end-results were good with either method. In a series of cases watched for at least five years local resection with gastro-enterostomy had given 88 per cent. of known cures. His own practice was to perform, wherever possible, a local resection with gastro-enterostomy or a partial gastrectomy. Local resection had given him the lower mortality and the higher percentage of late cures while it was free from the objection that it removed a large portion of the normal stomach.

Mr. G. GORDON-TAYLOR said that a survey of the immense literature on this subject had not rendered his outlook any clearer. Apart from the figures of the New Lodge Clinic and the investigations of David Smith, of Glasgow, there was little statistical evidence of an unassailable nature as to the real and permanent value of the medical treatment of gastric ulcer. A year or two ago the "alkaline treatment of ulcer" raised much hope, and many cases were dealt with on non-surgical lines for longer periods than would otherwise have been the case. Some of these, he added, had reached the surgeon at an inoperable stage. Good work had been done by Rendle Short in recording certain statistical end-results from various medical clinics. There was no doubt that medical treatment could cure ulcer of the stomach, and no ulcer should be submitted to surgery which had not received skilled medical treatment, provided that malignancy could be excluded. Short found that 75 per cent. of cases of gastric ulcer could, by medicine, be made symptom-free, but that only 40 per cent. of the patients would remain well, while 15–20 per cent. would be dead in ten years.

NO ONE OPERATION FOR THIS CONDITION.

There was, Mr. Gordon-Taylor declared, no one operation for simple ulcer of the body of the stomach. No surgeon of experience and judgment would press one type of operation for a pathological condition to the entire exclusion of all other methods. The methods of cure should be those which could be safely borne by the patient; but with carcinoma there was justification of heroic surgery to bring about cure. The great skill and experience of Hans Finsterer enabled him to resect almost any ulcer, whatever its position or condition, or at whatever age the patient had arrived; and he had the remarkably low mortality of 2·7 per cent. Mr. Walton employed wedge-resection and gastro-jejunostomy, and in some cases which others not possessing his special skill would not so approach. For more than ten years he had himself been an ardent gastrectomist, but increasing surgical knowledge had shown him that the surgeon must be an eclectic. It was personal experience, not second-hand information, upon which judgment should be based. In the case of a small ulcer on or near the lesser curvature of the stomach no experienced surgeon would perform gastrectomy; the operation of choice was an ulcer-excision or

cautery combined with gastro-jejunostomy, gastro-duodenostomy, or some form of pyloroplasty. In addition a drainage or a physiological operation should be done. The value of gastro-enterostomy was greatly enhanced by local treatment of the ulcer itself. From mere gastro-jejunostomy Mr. H. J. Paterson had obtained a mortality-rate as low as 1 per cent.; that surgeon had declared that probably there was no operation which had added more to the sum of human happiness than gastro-enterostomy. For large ulcers of the body of the stomach, especially when adherent to the pancreas, liver, or diaphragm, partial gastrectomy was, Mr. Gordon-Taylor considered, the method of election.

On the relationship of ulcer to cancer opinion had changed during recent years. Hurst and Stewart had stated that 16 per cent. of cancers of the stomach started in an ulcer, and that of 180 chronic ulcers excised, over 6 per cent. had cancer in the margin. The menace of malignancy was therefore a real one. After partial gastrectomy for large ulcers of the body of the stomach, 88 per cent. of his cases had recovered normal working efficiency; no serious or metabolic upset had occurred. In 44 per cent. of the cases a certain degree of anæmia was present, not giving rise to symptoms; it was not pernicious anæmia. An increase in uric acid and blood cholesterol were the only abnormalities found on a chemical examination of the blood. In the intermediate type of case in men he advocated gastrectomy, as the end-results could scarcely be surpassed, and the mortality was low. But in women the end-results were not so good, because of the greater liability to anæmia, not of the Addisonian type. For the ulcer of intermediate size in women he practised where possible either a sleeve resection or a Billroth No. 1 operation if the duodenum was sufficiently wide to ensure a safe anastomosis. Of the extensive "letter-box" or inaccessible ulcer he had had little experience, and less success, with jejunostomy. In the male he was tempted to do gastrectomy, as the results were excellent. Finsterer considered that no ulcer was irremovable. For women having this kind of ulcer it was well to try cholecysto-gastrostomy, or even jejunostomy. In hour-glass contraction the surgical treatment should be governed by the presence or absence of pyloric stenosis, the fixity of the causative ulcer, the site of the stricture, and the sex of the patient. He preferred gastro-gastrostomy for these, with or without some form of pyloroplasty. For hæmorrhage from an ulcer, the treatment was that of the ulcer itself. For perforation he did suture and drainage only. Several times he had successfully dealt with a combination of perforation and hæmorrhage by an immediate gastrectomy. Gastric and duodenal ulcer might exist in the same patient.

DISCUSSION.

Mr. CECIL A. JOLL said that many surgeons used the term "pyloric ulcer" implying that it was a commonly occurring lesion, yet it was very rare for an ulcer to begin within an inch of the gastric aspect of the pylorus. In 916 operations for gastric and duodenal ulcer, there were only four chronic gastric ulcers which could be classed as pyloric. But he had performed duodeno-pylorectomy in 43 per cent. diagnosed as due to pyloric ulceration, in which the original site of the ulcer was the posterior surface of the duodenum. An ulcer undergoing malignant changes was not likely, he thought, to be successfully extirpated by the wedge operation. In the case of large fixed penetrating ulcers, repeated blood transfusion and the use of intravenous glucose, saline infusions and lavage of the stomach enabled partial gastrectomy to be performed without undue risks. Jejunostomy he had found disappointing.

Mr. JOHN MORLEY said it could be considered agreed among surgeons that no single operative method was suitable for all the kinds and situations of ulcer found in the stomach; there should be a readiness to postpone decision as to the kind of operation to be done until the area had actually been exposed. To obtain the best results some form of excision of the ulcer was essential. He was not driven to that view by a fear of malignant change, for malignancy occurred too seldom in a chronic gastric ulcer to influence the choice of procedure. It was often difficult, if not impossible, to determine by inspection whether an ulcer was simple or malignant. Most surgeons had a leaning to a particular operation, and his own preference was for the Schoemacher modification of Billroth No. 1 gastrectomy; this the speaker had performed 119 times for ulcer in the body of the stomach in 119 cases, with three deaths. As to the remote results of this operation, it did not—as the Polya operation did—abolish gastric digestion, nor cause the secondary anæmia which was so frequent. He urged a bolder attitude towards the surgical treatment of bleeding ulcer. Many taught that hæmatemesis should first be dealt with on medical lines, operation being deferred until strength had been restored. But he had seen patients die from a recurrence of hæmorrhage when surgery might have saved them. Until a bleeding ulcer had been excised, there was no certain means of controlling the hæmorrhage.

Mr. CECIL ROWNTREE regarded the discussion as a milestone in gastric surgery. Gastrectomy for ulcer was still on its trial, although four years ago it was coming to be regarded as the only treatment for all kinds of ulcer. The fear that ulcer might degenerate into malignancy was unfounded; he never allowed the possibility to influence his choice of treatment. Gastrectomy was admittedly the correct treatment for the penetrating ulcer which had involved the pancreas. Surgeons, it must be remembered, only treated gastric ulcer after medical treatment had had its chance. For tiny ulcers on the lesser curvature he thought the best procedure was partial gastrectomy, as it seemed to keep the patient free of symptoms afterwards. After gastrectomy he did not think a patient could be regarded, from the life-assurance standpoint, as a first-class life. He had himself adventured in the direction of jejunostomy mainly because he had been much impressed with the relief it gave in cases of inoperable cancer of the stomach. He started doing jejunostomy for ulcers which appeared to be inoperable in ordinary hands, and he had also done it for gastro-jejunal ulcer, and in one or two of the latter the patients were now well. He was now performing jejunostomy for ulcers no larger than a threepenny piece. He had long felt that hæmatemesis should be treated on the same lines as bleeding following gastro-enterostomy—namely, by immediate transfusion and a free opening of the abdomen to discover the bleeding point.

Prof. C. A. PANNETT thought an attempt should be made to apply ordinary surgical principles to hæmorrhage coming from a gastric ulcer. The loss of large quantities of blood brought the patient into a very low condition so that he was not fit for an immediate gastrectomy. The surgeon was seldom called to such a case until the hæmorrhage had been persisting for some days. It was then imperative to determine definitely whether treatment should be medical or surgical; one should not change horses in

mid-stream. If surgery were to be given a chance the surgeon must be allowed to see such cases earlier. For very large ulcers he agreed that gastro-jejunostomy was the operation. Small ulcers on the lesser curvature he dealt with differently; if a sleeve resection was done, he thought a pyloroplasty should be carried out also. Where a Billroth No. 1 operation was possible he preferred that to the Polya gastrectomy.

Mr. J. CUNNING said he did not agree with Mr. Walton's statement that all ulcers which perforated were chronic ones; such an idea was usually based on the fact that the ulcer was indurated; but if a perforation was a slough, any ulcer could be indurated. He described a case of perforation of an acute ulcer. He did not believe in the danger of malignant degeneration of gastric ulcer; only twice had he seen malignant ulcer with a prolonged history of gastric ulcer.

REPLY.

Mr. GORDON-TAYLOR said his feeling now about hæmatemesis was to operate as soon as the bleeding had stopped and the blood pressure had commenced to rise. With regard to carrying out jejunostomy for some of the inoperable or inaccessible cases of ulcer, high up on the back of the stomach, he referred to a patient with perforated duodenal ulcer, which was operated upon 36 hours after the perforation. The ulcer was sewn up and nothing more done. Three days later there was a re-perforation, and a duodenal fistula developed.

Mr. WALTON agreed that the end-results of partial gastrectomy were good, and he believed pernicious anæmia seldom occurred. He had never seen a case of secondary anæmia become pernicious; if it occurred it must be very rare. With regard to laparotomy for perforation, at one time there existed a feeling that the abdomen should be closed almost at once. He always liked to carry out slight suprapubic drainage, and if there were a widespread infection he also drained from the stomach. He had never known trouble arise from drainage, but he had known difficulties to occur when drainage was omitted. A pyloric ulcer he conceived of as one which extended over a portion of the stomach; he had seen cases in which such an ulcer had healed as far as the duodenal side was concerned, but had developed carcinoma on the gastric side. However small that kind of ulcer might be there was the possibility of its becoming carcinomatous. He believed that 10 per cent. of carcinomas in this region originated in ulcer.

SECTION OF LARYNGOLOGY.

A MEETING of this section was held on May 1st with Mr. FRANK ROSE, the President, in the chair.

Upper Œsophageal Obstruction.

Dr. A. BROWN KELLY (Glasgow), in opening the discussion on obstruction at the upper end of the œsophagus (excluding diverticula), said that the more pronounced the stenosis the earlier the dysphagia became manifest and the greater was the menace to life. A consideration of these abnormalities should embrace their effect in the newly born, the young child, and the adult. First, in regard to atresia with œsophagotracheal fistula, he said that atresia was the most serious maldevelopment of the gullet, for the issue was always fatal. Seldom had the condition been better described than by Morell Mackenzie in 1884. In the commonest variety the atresia was associated with an œsophageal fistula. Here the upper part of the œsophagus ended blindly above the level of the bifurcation of the trachea, while the lower part passed up from the stomach to the posterior wall of the trachea, where it opened as a fine fistula. The signs were those of obstruction high in the œsophagus, so that from time to time the child coughed, choked, and became cyanosed because it could not swallow the accumulated saliva and mucus. A small bougie which it was attempted to pass was checked at a distance varying from 9 to 13 cm. from the gums. Usually in this condition one could find other congenital abnormalities also, imperforate anus being the commonest of these. In order to prove that a stenosis of the œsophagus was congenital it was necessary to ascertain that dysphagia and regurgitation had been present from birth, or at least from the date when the child was first given solid food; and either endoscopic examination during life or a post-mortem examination should show a smooth lining membrane, without any evidence of cicatrisation.

Referring to cases in which narrowing occurred at a lower level, Dr. Brown Kelly said these caused, in children, symptoms whose severity was intermediate between those of atresia in infants, and those of stenosis in adults. When narrowing of the lumen was not very severe no sign of œsophageal obstruction might be noted until attempts were made to give semi-solids, from which time onwards meals were constantly being brought up. At quite an early stage radiographic examination and endoscopy should be carried out. The constriction was usually found to be opposite the seventh thoracic vertebra.

Speaking next of stenoses at the upper end Dr. Brown Kelly said that the prevailing ignorance of both the normal and diseased conditions in the hypopharynx and upper end of the œsophagus was due to the difficulties encountered in the chief methods of examination—i.e., X rays and endoscopy. So quickly was the bolus of food projected into the gullet that one could not make deliberate inspection of what took place during this transit. Perhaps the cinematograph could fill this hiatus. The passage of an endoscope might be much hindered for a time by spasm of the cricopharyngeus muscle; and a further difficulty was the want of orientation landmarks, so that a delicate membrane might be ruptured even before it was seen. Narrowing of the lower part of the hypopharynx or upper part of the œsophagus could be due to a membranous diaphragm, fold, or ledge, or to a diminution in the size of the lumen.

Congenital stenoses at or near the upper end of the œsophagus were very rare. Morell Mackenzie called this condition "simple stenosis of the gullet," and said it was an abnormal narrowness of a limited part of the œsophagus without morbid changes. The speaker showed a specimen from a case of congenital stenosis at the entrance to the œsophagus, in which there was a gradual and uniform narrowing of a length of 1 cm., and beyond it the lumen of the œsophagus was normal. The lining of the funnel-shaped stenosis was quite smooth, suggesting a congenital origin. This patient was a man, aged 35, who died from cerebral hæmorrhage.

In a few of Dr. Brown Kelly's cases the narrowing was produced not merely by spasmodic muscular contraction but also by a circular membranous web with an aperture 3 or 4 mm. in diameter. A few patients who had malignant disease at or near the mouth of the œsophagus said they had had difficulty of swallowing since early childhood. Logan Turner had found in 94 cases of post-cricoid cancer

that four of the patients stated they had had "a narrow throat" as long as they could remember.

Dr. Brown Kelly referred to the occasional presence, at the upper end of the gullet, of islands of gastric mucosa. To the unaided eye these appeared as sharply demarcated oval patches, yellowish-brown in colour, and they were liable to be mistaken for superficial erosions. Usually these islands were found between the lower end of the cricoid cartilage, and the level of the seventh or eighth tracheal ring on the lateral part of the posterior wall. They were commonest in adult life, but might be met with at all stages of development. Such islands were sharply demarcated from the surrounding stratified squamous epithelium of the œsophagus by the surface becoming irregular owing to the presence of a number of long papillæ, between which were deep pits.

SPASM AND STENOSIS.

Dr. D. R. PATERSON (Cardiff) followed. He said he considered that obstruction at the upper end of the gullet could be due to two kinds of causes: spasm at the entrance, and malignant disease. His purpose was to raise some problems for discussion.

In 1919 Dr. Brown Kelly and he had drawn attention to a clinical syndrome in women chiefly characterised by a gradually increasing inability to swallow, because of spasm of the pharyngo-œsophageal sphincter, and, at a later stage, anæmia. The latter could be looked upon as a secondary manifestation of the dysphagia. A peculiar point was that he had never seen this form in a man, in which sex the obstruction was usually a malignant one. Sometimes spasm was met with in a man, but it was usually an accompaniment of malignant stricture further down. The women he referred to usually came under observation first in middle life, often giving a long history of dysphagia, which had latterly slowly restricted them to liquid food. Some of these cases were incorrectly labelled hysterical. From an early stage they might show slight changes in the mouth, possibly no more than a mild atrophy of the tongue papillæ. Only later did superficial glossitis appear, the tongue being smooth and devoid of papillæ. This atrophic change in the mucous membrane was related essentially to the food passage, and not to the air tract. Even marked atrophic pharyngitis resulting from nasal disease was rarely accompanied by dysphagia. Cases were met with of a web at the entrance of the gullet, and Mosher had pointed out that frequently the use of a tube without due observation removed a web. Anæmia was a late symptom, and was of gradual development. Munro Cameron had stated that the blood changes were essentially those of chlorosis and mild secondary anæmia, with a constant reduction in the hæmoglobin percentage.

Immediately after the passage of a tube there was an increased capacity to swallow, and if the patient was now told that she could swallow solid food she soon improved in general condition. Cures were not always permanent; in some of the patients the return to normal was not complete, and some dysphagia might persist; this was much relieved by the occasional passage of a bougie. It was the speaker's experience that malignant disease was often a late sequel of this syndrome.

With regard to malignant disease in the part concerned, Dr. Paterson drew attention to some of the salient facts which had been established by Logan Turner. One was that carcinoma at the upper end of the gullet was more common in women than in men, also it was met with at an earlier age in females than in males, 20 to 30 years of age not being uncommon in the former. A review of hundreds of cases of cancer of the œsophagus showed that at some stage each one had been diagnosed as hysterical dysphagia. Pain, which was often localised to one side, and was also felt in the ear, was almost symptomatic of grave change, and so should direct attention to that side of the hypopharynx.

The problem of the treatment of malignant disease in this region was, said Dr. Paterson, entirely bound up with its early detection. The laryngoscope, œsophagoscope, and X rays should all be brought into requisition. Only when the disease was limited did surgery give hope.

Dysphagia was only occasionally due to webs, a common site for which was behind the cricoid cartilage. Some, those which were thin and slight, could be disposed of by passing a tube, but others were thicker and might support a shallow pouch. Dr. Paterson thought that the whole subject of webs was worthy of further discussion.

ILLUSTRATIVE CASES.

Prof. GEORGES PORTMANN (Bordeaux) spoke of two cases of the kind under discussion. One was a woman, 20 years of age, the other a man, aged 45. Both had stenosis of the hypopharynx, not congenital, nor consequent upon trauma; no syphilis, lupus, or other disease could be incriminated. The condition was a gradual concentric stenosis by fibrous tissue. He was compelled to do first tracheotomy, then gastrostomy. He used diathermy as the treatment, and both patients were now cured. They had not a normal hypopharynx, but they were able to swallow and breathe.

Mr. HERBERT TILLEY said that in 30 years he could recall only one case which came to his personal knowledge at the hospital as a congenital atresia of the gullet. That child died in three days. As to the possibility that functional aphonia might be a precursor of malignant disease, a lady was sent to him because she had difficulty in swallowing. He passed a bougie, and a fortnight later she had no further difficulty. Five years later she was losing flesh and had great difficulty in swallowing. When he saw her again at this later date she was very thin, there was a little bright blood in the right pyriform sinus, and he was unable to pass a bougie. A post-cricoid cancer was found, and two or three months later she died. If a patient having obstruction was relieved by the passage of a bougie, and then returned after a short time, it called for a direct examination of the gullet. Youth in the patient was no guarantee that the condition was not malignant. He spoke of the case of a medical man who consulted him because of pain in the throat and difficulty in swallowing; he also had joint pains. He was found to have intense œdema of the left arytenoid and fixation of the corresponding cord. He had had acute rheumatic fever. He got well under treatment, and six months later the œdema had disappeared and the cord was moving normally. Mr. Tilley also described other cases.

Mr. V. E. NEGUS described the case of a patient (whom he showed) with an inflammatory swelling of the ary-epiglottic folds. She was aged 54, and her complaint was of a throbbing of the throat and of the formation of a "froth" there. Swallowing was not interfered with. On indirect examination one saw a regular, firm, red swelling in the posterior region of the ary-epiglottic folds, but there was no ulceration, nor was any neoplasm seen; the Wasser-

mann reaction was negative, and there was no secondary anæmia. It might be merely an inflammatory swelling of the larynx.

Mr. A. J. M. WRIGHT (Bristol) said he had been watching cases with the condition under discussion for 23 years. The condition of glossy tongue with dysphagia he thought was originally a chronic infection, which probably explained the fact that these patients when seen, though in many cases young, were almost always edentulous. It would be of great practical interest to know how often a late sequel of the condition was the formation of new growth. Hot tobacco smoke had been invoked as a possible determinant of carcinoma of the tongue, so in women the drinking of hot tea could be indicted.

Dr. DOUGLAS GUTHRIE (Edinburgh) alluded to some cases in which various abnormalities of the gullet occurred. One was that of a child 8 months of age, which obviously had difficulty in swallowing, though it was possible for it to take nourishment. At the entrance to the œsophagus he found a soft growth, resembling a nasal polypus. He removed it under suspension laryngoscopy, passing a snare under the cyst, when it collapsed. The contents were not clear, but milky looking.

Mr. W. S. THACKER-NEVILLE (Harrogate), referring to the statement that the drinking of hot fluids, such as tea, might cause cancer, said the Chinese were addicted to very hot tea-drinking, yet during the time he was in that country he did not see a case of post-cricoid carcinoma.

Dr. R. S. JOHNSON spoke of a series of cases of combined anæmia and dysphagia which were in St. Bartholomew's Hospital under Dr. George Graham, the ages of the patients ranging from 33 to 48. All showed a very low colour-index, and the anæmia was of the secondary type. In one the œsophagoscope could not be passed, owing to the spasm. The cases showed achlorhydria. He suggested that in this type of case there was a specific kind of anæmia, associated with a slightly increased fragility of the red cells, with achlorhydria and secondary changes in the mucous membrane of the tongue and the œsophagus.

MEDICAL SOCIETY OF LONDON.

THE ANNUAL ORATION.

AT the general meeting of this society on May 11th, with Dr. R. A. YOUNG, the President, in the chair, Sir JOHN ROSE BRADFORD delivered the Annual Oration, taking for his subject

Medicine as Science and an Art.

The last 50 years, he said, had not only been marked by numerous great discoveries in the realm of natural knowledge, but had been more especially remarkable for the rapid application of those discoveries to the practical needs of humanity. The very benefits which these discoveries had conferred led necessarily to some confusion as to the real relationship between scientific discovery on the one hand and its practical application on the other. The ever-increasing demand for practical applications and benefits was apt to dominate the situation and might even affect the mental outlook of those whose primary purpose was only to add to knowledge. The chemical or physical problems involved, for example, in the production of artificial silk, in wireless communication, or in the steam turbine, were really only fully appreciated by the experts in the particular branch of science concerned, and were often difficult of apprehension by a worker in another branch. When the practice of an art was founded on the achievements of a science, differences between the modes of thought of workers in the science and those engaged in pursuit of the art were apt to become accentuated; two camps were likely to be formed, and it was even possible for the one to doubt the value or even the very existence of the science in question, while the other asserted that all would be well if the so-called art were replaced by something which they could regard as science. Many doubted whether medicine was a science, but a practitioner could not exercise his art efficiently unless it were well grounded on scientific principles.

THE SOLDIER AND THE DOCTOR.

In many respects the profession of medicine resembled that of the soldier even more than that of the engineer, with which it was often compared. The soldier and the doctor both had to grasp a situation and determine with little or no delay a course of action; he had to have instinct or flair, military in the one case, clinical in the other; and both were useless unless their instinct was based on and regulated by sound general principles which owed their origin to the study of the science of war and of medicine respectively. A favourite definition of science was "measurement," but a wider outlook might be more satisfactory, and the orator quoted Ruskin's definition that the work of science is to substitute facts for appearances and demonstration for impressions. Such a definition was closely applicable, he said, to the science of medicine. Looked at from a particular standpoint, medicine was of course but a branch of biology, most akin to the subdivision of biology known as natural history. Many might be inclined to take a narrower view of the essential nature of medicine, and regard it as merely a deranged or abnormal physiology, for the connotation of which, for the purposes of convenience, the terms "pathology" and "pathogeny" had been applied. But the natural history of an animal or plant dealt with much more than purely physiological processes, and many of the phenomena of living organisms could not be fully investigated either in the laboratory or by the methods of the laboratory alone. To acquire a satisfactory knowledge of the life processes of an animal or plant, both the methods of study practised in the laboratory and those practised in the field were required, and it was unfortunate that both in biology and in medicine there should be a divergence of view about the relative importance of the one method and the other. What fundamentally mattered was that the pursuit of natural history in the field of clinical medicine in the wards should not suffer because supposed to be of less importance or to require a smaller degree of equipment, mental or material, for its pursuit. The two classes of workers must pursue different methods, but should both take to heart the dictum of Ruskin quoted above. The science and art of medicine or the principles of the practice of medicine were often represented pictorially by a book and the well-known caduceus, with the twined snakes, the former representing the knowledge and science of medicine, and the latter the practice of the art. That was a suitable picture, but one vital proviso must be added—namely, that the book should be regarded as the book of nature, or as Longfellow put it, "the manuscripts of God."

THE BOOK OF NATURE.

The dark ages of medicine for centuries before the advent of Harvey were in no small measure attributable to the book of nature not having been consulted, and reliance having been placed on

authority, or the book of man. Harvey consulted the book of nature himself, and proceeded to ask a series of masterly questions, finding answers which established scientific medicine. In the progress of science the gift or discovery of a method of inquiry was often of more service even than the discovery of a great fact, and medicine in the person of Harvey had rendered not only great but possibly the greatest assistance to the progress of all biological sciences. The experimental method in these recent years had extended the scope of its operations to a most remarkable extent, so that at the present time much of the work of the biologist and botanist was performed with its help. In fact, the modern biologist paid an ever-increasing attention to problems capable of solution by the experimental method rather than to problems of morphology; in other words, function was being more considered than structure. Although medicine was profoundly indebted to other sciences in its own realm, the relationship was not entirely unilateral. It was natural and quite excusable for the great public to fail to recognise the value of so-called abstract research, but members of the profession of medicine, whose daily work afforded them countless instances of the priceless material benefits which had accrued to their art as a result of such work, should be chary of belittling research whose practical application was not apparent.

The science of medicine might be said to have for its field the study of the phenomena of disease as a whole and the means best suited for its prevention. The art of medicine was concerned mainly with the problems encountered in our attempts to recognise the presence of disease in individuals and to treat it. Naturally, no absolute hard-and-fast line could be drawn between the science and the art in given instances, though knowledge of the prevention of disease might reach a very high level of development from the purely scientific standpoint while failing in its application owing to imperfections in the study of the art of medicine in the clinical field. Medicine as a science was no mere appanage of anatomy or physiology or pathology. There was something else, which it was difficult to describe accurately in words, but might be conveniently summed up as the natural history of man. The natural history of diseased man was, of course, the special study of clinical medicine. Clinical medicine, like field natural history knowledge, was not easy to acquire. Both necessitated a long apprenticeship; often prolonged time was required to afford opportunity, and, further, it was exceedingly difficult to acquire habits of observation which reached the high standard of scientific accuracy.

To have a really comprehensive view of medicine it was essential not to confine the attention to human medicine. The consideration of disease in animals, at any rate domestic animals, must be included. This was important not only from the point of view of communicability of disease, but also from the far wider point of view of checking any tendency to narrowness of outlook and dogma in respect to the true causation of any disease. The comparative method had always exercised a broadening influence on the human mind, and might be applied with advantage to medicine as well as to anatomy and physiology.

CONCLUSION.

In conclusion, Sir John Rose Bradford said that his aim had been to insist that further progress must be based rather on the mental views held by the disciples of medicine than by the mere use of increased instrumental or chemical agencies now available for their service. If medicine was regarded as an appanage of physiology or even of pathology, possibly great advances might be made by individual discovery, but such discoveries would often not only be of limited scope, but still more often very difficult of application when they were removed from the relatively simple conditions of the laboratory to the complex field of operations of clinical medicine. Clinical medicine still offered plentiful scope as of old for those gifted with real powers of scientific observation, and important as the experimental method was, and valuable as the instrumental aids, these were not by any means the sole methods of advance, either for the science or for the art of medicine.

A vote of thanks to the Orator was proposed by Dr. HERBERT SPENCER, and seconded by Mr. DONALD ARMOUR, and heartily carried.

MANCHESTER MEDICAL SOCIETY AND PATHOLOGICAL SOCIETY OF MANCHESTER.

AT a joint meeting of these societies on April 15th, with Mr. J. HOWSON RAY in the chair, an address on

Epidemic Encephalitis

was given by Prof. ARTHUR HALL (Sheffield). He began by giving an account of the acute cases, which first appeared in 1916 and recurred in epidemic waves during the next seven or eight years. He called attention to their periodicity, to the variability of onset in individual cases, and to the extreme differences of reaction to infection. In some cases the acute attack presented no diagnostic features, in others quite definite stigmata showed themselves, whilst in a third group there was no recognisable illness at all, the first symptoms appearing only at a later period and in more chronic form. During the last five or six years the number of acute cases had steadily diminished. Undoubtedly, sporadic cases were still occurring but they were few in number, and in this country no epidemic outbreak of any magnitude had followed that of 1924. To-day it was the chronic progressive disease which showed itself, chiefly, though not solely, as parkinsonism. The destruction of cells in the substantia nigra found in such cases supported the view held by most clinicians, that parkinsonism is a chronic progressive encephalitis of active kind rather than a mere passive residual effect of the acute attack.

What, asked Prof. Hall, was the future of those mild and partial cases of parkinsonism which had so far remained stationary for periods varying from 7 to even 10 or 11 years?—Had the activity of the process ceased or was it only temporarily arrested? As most of the patients were young persons at an age when marriage and choice of occupation had to be considered, important decisions often depended on the answer to this question. The difficulty was great because there were no precedents. A second question was: Would the epidemic waves recur? Whilst there was evidence that since 1924 the number of new cases had been steadily diminishing, yet judging by the behaviour of other neurotropic epidemics it would be rash to prophesy that they would continue to diminish.

NOTTINGHAM CHILDREN'S HOSPITAL.—The result of the recent enlargement to 100 beds is that last year there were 920 in-patients as compared with 660 in 1929, and that at 424 the number of operations nearly doubled. The hospital is now a recognised nurses' training school.

REVIEWS AND NOTICES OF BOOKS

Principles of Epidemiology and the Process of Infection.

By C. O. STALLYBRASS, M.D., D.P.H., Chief Assistant Medical Officer of Health, City and Port of Liverpool; Lecturer on Vital Statistics and Epidemiology, Liverpool School of Tropical Medicine. London: George Routledge and Son, Ltd. 1931. Pp. 696. 30*s*.

THIS book represents a departure from the traditions of literature on public health at least in this country. It is an attempt by a medical practitioner engaged in the day to day work of a health department to bring within one compass the sum of our knowledge of epidemics, and of present-day methods of approaching the still obscure problems of epidemiology. Obviously, such a programme must cover the history of epidemics, statistical ways of studying them, their environmental, bacteriological, and immunological conditions, their cyclic and seasonal variations, and their susceptibility to practical measures of control. Moreover, if the book is intended primarily for the medical officer of health, as this is, it should be sparing in reference to the more intricate refinements of special subjects like bacteriology and statistical methods, although they have an important bearing on the main topic. On the whole, if these criteria are accepted, Dr. Stallybrass has succeeded in his purpose. Not every public health administrator, who ought to be equipped with information which has a practical bearing on the control of communicable disease, has a sufficient grounding in mathematics to understand the chapter on statistical methods, and possibly too much has been crowded into chapters which deal with micro-organisms, their invasion of the human body, and the resistance they provoke. Indeed, the impression is gathered that Dr. Stallybrass has had some difficulty in discarding from his very wide knowledge of the branches of science ancillary to epidemiology. His book is therefore not easy to read. It should be considered, however, as a book of reference, and in this respect it supplies a want which has been felt to an increasing extent in recent years as a result of the rapid progress of inquiry into the causes and behaviour of epidemics. The book is not free from defects in proof-reading, although they are not unduly prominent. There are a very few errors of a more serious character which will require correction in any future edition—e.g., the equation "Mortality-rate = morbidity-rate × fatality-rate." The index is complete and reliable. An extensive and well-selected bibliography of about 800 publications bearing on the matters discussed in the body of the book is a useful feature.

As a work of reference this book will be invaluable to medical officers of health and teachers of preventive medicine.

Physical Diagnosis.

By WARREN P. ELMER, M.D., Associate Professor of Clinical Medicine, Washington University; and W. D. ROSE, M.D., late Associate Professor of Medicine, Arkansas University. London: Henry Kimpton. 1930. Pp. 903. 42*s*.

THIS large volume is divided into two parts. The first and rather larger section concerns itself in minute detail with the time-honoured methods of physical examination—inspection, palpation, percussion, and so forth—together with an exhaustive analysis of the results obtained. Some of the detail might be spared, even by the beginner. For instance, it is noted that the intensity of vocal fremitus varies directly with the intensity of the speaking voice, and that when the voice is increased the fremitus follows suite, and vice versa. Many interesting points in the mechanism of the production of physical signs are set out. One short chapter is devoted to "Palpation of the Lower Extremities," but it is doubtful if so methodical a system in diagnosis as a complete physical examination of the human body in every case is of great value, apart from relevant symptoms. The chapter on radiographic methods by Dr. Sherwood Moore is good and excellently illustrated, and the short chapter on electrocardiography is useful.

It is disappointing, when we come to the second part of the book, where these elaborated methods should find application, to discover that it is limited to the diseases of the respiratory and circulatory systems. Thus all the detailed topography of the abdomen and the methods of its inspection and palpation, as well as the chapters on speech, gait, and station, on inspection of the head and face, and of the inguinal, genital, and perineal regions, found in Part I., do not come to any particular fulfilment as far as this work is concerned. The chapters dealing with pulmonary and circulatory disease are very full. It may be doubted whether a work only on physical signs, excluding all consideration of symptoms, may not encourage students to see the trees rather than the wood. There are 337 excellent illustrations.

Taylor's Practice of Medicine.

Fourteenth edition. By E. P. POULTON, M.A., M.D. Oxf., F.R.C.P. Lond., Physician to Guy's Hospital. With the assistance of C. PUTNAM SYMONDS, M.A., M.D. Oxf., F.R.C.P. Lond., Physician in Charge of the Neurological Department of the Hospital; and H. W. BARBER, M.A., M.B. Camb., F.R.C.P. Lond., Physician in Charge of Skin Department; and R. D. GILLESPIE, M.D. Glasg., M.R.C.P. Lond., D.P.M. Lond., Physician for Psychological Medicine to the Hospital. London: J. and A. Churchill. 1930. Pp. 1074. 25*s*.

IT is 40 years since the first review appeared of this popular treatise in our columns, and looking back at our words we think that to a great extent they forecasted what would be its happy destiny. We congratulated the author then on the comprehensiveness and the able selection of his material, on the proportion observed between the various subjects, and on the accuracy in details, closing with the statement that the book would be certain to become a welcome guide to the students of the future. We have now received a copy of the fourteenth edition of the book, which has appeared at average intervals of three years since its birth.

A quotation by Dr. E. P. Poulton from his preface to the twelfth edition indicates his ideal in dealing with a classic, so as to render the teaching practically modern while maintaining a general plan whose value has been so prominently proven. Completeness, this preface indicates, must always be aimed at, and yet the main scope of the book should remain unchanged. To reconcile these contradictories in a text-book which displays the practice of a science that itself is ever changing, by the addition of the needful

and the discarding of what has been superseded, has been the work before the editor, who has felt that it could only be undertaken if the revision of the greater part remained in one hand, while assistance was freely invited to deal with certain specialties. The longest interval between the various editions has just occurred, and during this space of about five years the advance in all branches of medicine has been considerable. This has led to new articles on the streptococcal and staphylococcal infections, to the rewriting of the account of acute rheumatism so as to include chorea—with the result that the disease is now classified as one of the circulation—to new treatment of such subjects as coronary thrombosis, the acute abdomen, chronic cerebral softening and cerebral contusion, and chronic gastritis. Indeed, there is scarcely a page which has not been altered in conformity with the changes in accepted knowledge or theory. Further, the utility of the teaching has been raised in a high degree by such rearrangements of material as that which has occurred in the case of rheumatism. In previous editions many subjects, as mental diseases and the pathology of parasites, received scattered notice throughout the book, while the information concerning them has now been collated in special sections. With regard to mental diseases an article now appears by Dr. R. D. Gillespie, who remains in charge of this section of the work, on the legal relationships of these diseases, one by Dr. C. P. Symonds on the psychoneuroses finding appropriately its place in juxtaposition. Tropical diseases have been grouped in one section, and this part of the volume has been revised by Dr. Dyce Sharp and largely rewritten, while Dr. Barber has revived the dermatological sections.

Dr. Poulton makes detailed acknowledgment by name to a large group of authorities who have assisted him along the various lines into which the practice of medicine is now necessarily divided for intensive study, and by preserving the balance which has always been characteristic of "Taylor" has produced a new edition which is sure to find continued favour.

There are 64 plates (12 coloured) and 103 text-figures, including many radiograms. The increasing value of adequate illustration in clinical text-books is thus cared for.

La cryothérapie.

By Dr. LORTAT-JACOB, Physician, Hôpital St. Louis, Paris; and Dr. G. SOLENTE, Assistant Physician. Paris: Masson et Cie. 1930. Pp. 246. Fr.35.

COLD as an agent in the therapeutics of skin disease appears to have been initiated by Kaposi who applied a vessel containing ice to a few patients suffering from lupus erythematosus; but its real origin was in the attempts to utilise methyl and ethyl chloride as local anæsthetics in 1882. It was not until 1896, however, that Ullmann of Vienna published the first practical results in his treatment of angiomata by the latter substance, followed in 1901 by Dethlefsen who applied it for the cure of lupus and cutaneous cancer. The discovery of liquid air in 1884 initiated a new epoch in the history of congelation. It remained too costly and uncontrollable for general use, although A. C. White did much good work with it in the Vanderbilt clinic in New York. It was left to his countryman W. A. Pusey to devise an agent, solid CO_2, which ever since 1905 has not only proved of immense value in the treatment of localised cutaneous abnormalities, but vies with radium and other modern weapons in quite a number of departments remote from dermatology—for example, ophthalmology. Much that is collected in this volume has been known for years—the method of preparation and collection, the various sized cones for making the "pencils," the indications for treatment, and the comparative safety with which, even in inexperienced hands, good results can be obtained. The effects are the product of two factors: (1) the duration of the exposure, and (2) the pressure applied, and the latter, if the operator is a novice, can be accurately adjusted by means of the apparatus described in this book. The number of cutaneous conditions that can be treated by freezing is surprisingly large and ranges from chilblains to cancer. The authors use it for rosacea, in some forms of which localised papules and telangiectases are a pronounced feature. Even septic conditions such as indolent ulcers, and the hæmorrhagic forms of granuloma pyogenicum are amenable, while for vascular nævi it is the treatment of choice. The whole subject is methodically discussed. The histological effects are illustrated by microphotographs, and special sections are devoted to the modifications imposed by the topography of the lesions such as those in the eyelids, the alæ nasi, or the aural cartilages, in which localised disease or stigmata are relatively common.

This volume reveals a series of indications which, in view of the modern popularity of the various electrical and ray treatments, may have escaped the notice of even experienced dermatologists, while the simplicity of the technique, the relative immunity from complications, and the almost perfect cosmetic results, make their special appeal to the general practitioner.

The Charaka Club, 1931.

Proceedings of the Charaka Club. Vol. VII. New York: Paul B. Hoeber. 1931. Pp. 190. $5.00.

THIS is the seventh volume of the well-known Proceedings of the Charaka Club, and like all its predecessors provides a medley of wisdom, learning, research, and fun. The book is prefaced by a list of the members of the body, who may be congratulated on the number of names now appearing which previously appeared 20 years ago—the members live long, as witty men should. The present volume contains no exactly medical article, but the contents will appeal to all medical men who seek and find interest in the history and traditions of their profession, and its associations with literature. An essay on the education of the Barber-Surgeons in France by Dr. E. C. Streeter, is an informing history of the growth and development of surgery in mediæval France; a paper by Dr. F. R. Packard on the Journal of Jean Héroard, Physician to Louis XIII., throws an intimate light on domestic medicine in the same country in the sixteenth century. This contribution owes its origin to a manuscript preserved in the Bibliothèque Nationale at Paris, and only a certain portion of it has ever been published. It forms a minute history of the earlier bringing up of Louis XIII., starting with the accouchement of Marie de Medicis, the second wife of Henry IV., and includes an instructive list of the medical establishment attached to the court, 21 in number, with different duties assigned to them. The volume includes a selection of verses, grave and gay, by Dr. G. D. Stuart, and many illustrations, of which the best are those which accompany Dr. R. L. Dickinson's chapter on Chinese boats.

THE LANCET.

LONDON: SATURDAY, MAY 16, 1931.

SPLENIC FUNCTIONS AND DISEASES.

READERS of the Lettsomian Lectures at the Medical Society of London, reported in our columns of this and two previous weeks, have now been presented with what is really a monograph on "the spleen and its sufferings," to quote the convenient inclusive title of an address given by the late Sir FREDERICK TAYLOR before the Midland Medical Society in November, 1905. This difficult subject, long the field of hypotheses, has recently, like other branches of medicine, been extensively investigated and advanced; but, except for Lord MOYNIHAN'S volume on "The Spleen and Some of its Diseases" ten years ago, has not been exhaustively reviewed in this country, and so is in need of a scientific summary such as Dr. J. W. MCNEE here provides. In doing so he has returned to a subject to which he has in the past made notable contributions; in addition to work on the reticulo-endothelial system, of which the spleen is such an imporant site, he has specially investigated its normal structure and brought order into the grouping of its morbid changes. The spleen being in the portal system and containing so much lymphoid tissue may therefore naturally share in the diseases both of this system and those of the blood-forming organs, as was shown in H. EPPINGER'S valuable book "Die hepato-lienalen Erkrankrungen" 1920, a subject which has not escaped the attention of this year's Lettsomian lecturer. In order to understand the disorders and the significance of structural changes in an organ, it is obviously essential to have an accurate knowledge of its functions and normal anatomy. The physiology of the spleen is beset with difficulties, it is not a vital organ, and its numerous functions are shared by other parts of the body and can thus be compensated when it is removed or damaged. Hence experimental excision or extensive disease does not give rise to manifestations which reveal its functional activities in the same clear and unmistakable manner as in removal of the thyroid or parathyroid glands.

It is therefore well that beginning with an attractive historical review Dr. MCNEE has cleared the ground by a summary of our present knowledge of the physiology and anatomy of the spleen. It is perhaps noteworthy that the contractile power of the spleen, postulated as long ago as 1722 by WILLIAM STUKELEY in his Goulstonian lectures at the Royal College of Physicians of London, was not fully investigated and established until 1881 by C. S. ROY, then George Henry Lewes student at Cambridge, where 40 and more years later BARCROFT and his co-workers made it permanently obvious. The discussion of the relation of the spleen to the digestive processes, and especially to fat-metabolism, shows that our knowledge of the physiology of the organ is still far from finality. Some of the details of the structure of the spleen recently brought forward, such as the "ellipsoids," are really re-discoveries of what was once known, but then forgotten. The significance, otherwise uncertain, of the anatomical make-up of the organ has been elucidated by the assistance of physiological methods; thus the problem whether the intrasplenic circulation is completely closed or open, or a combination of the first two alternatives, has been brought, by BARCROFT'S experiments with CO and those of MCNEE and M. F. CASHIN on other lines, to the conclusion that there is a two-fold circulation; the first is the ordinary circulation through the splenic artery, venous sinuses directly into the splenic vein; the other, intermittent, is brought about by contraction and relaxation of the whole organ, and consists of an emptying of the pulp spaces through the wide stigmata into the veins, and a filling again through the lateral channels in the ellipsoids.

As a classification for ordinary purposes of the diseases of the spleen, Dr. MCNEE suggests the adoption of one partly based on the histological changes in the chief constituent elements of the organ, namely: (1) the myeloid and lymphatic; (2) the endothelial (the reticulo-endothelial system); (3) the vascular system with its special peculiarities; and (4) the reticulum and supporting tissues, the trabeculæ, and the capsule. In addition to the first three of the above categories he now proposes groups headed abnormalities, tumours, infections, and combined diseases of the spleen, liver, and hæmopoietic system, making seven in all. His systematic and detailed account of the diseases met with in this country is largely derived from personal observation of clinical cases and pathological examination of many more than the 100 spleens on which he based his former classification in 1929; there is admittedly little about tropical splenomegalies or morbid changes in the spleen occurring incidentally in generalised conditions such as syphilis, tuberculosis, Hodgkin's lymphogranuloma, and leukæmia. Attention may be specially directed to the three types of disease included under the heading of those affecting the reticulo-endothelial system—namely, chronic hæmolytic jaundice, disturbances in lipoid metabolism leading to Gaucher's and Niemann's diseases, and to hypercholesterolæmic splenomegaly in diabetes mellitus, and thirdly, chronic splenomegalies of unknown origin showing well-marked proliferation of the reticulo-endothelial cells with giant cells, sometimes in such large numbers as to simulate a myeloma, but not megakaryocytes from the bone-marrow. The nature of these cases, in which the spleen may be very large, is obscure, and Dr. MCNEE can only suggest that they represent the response of the reticulo-endothelial cells to very chronic inflammation. The group of diseases affecting the vascular system of the organ forms the largest of British

splenomegalies, and includes many cases labelled chronic splenic anæmia and those due to thrombosis of the splenic vein. Splenomegaly, associated with peri-ellipsoid hæmorrhages and nodular siderosis, is not only extremely frequent, but has excited a considerable literature not devoid of a controversial character. Scattered over the cut surface of the organ are irregularly shaped, yellowish-brown nodules, the Gandy-Gamma or Gandy nodules, which contain iron and calcium; they were regarded by A. G. GIBSON in 1913–14, and after the war by NANTA, PINOY, GRUNY, EMILE-WEIL, and other French observers, as due to mycotic invasion. But MCNEE strongly opposes this view and regards them as the result of past hæmorrhages.

Though these lectures are full of personal observation, and show a critical knowledge of the vast literature of the subject, they do not profess to be a final pronouncement, and those keenly interested in this instalment of the lecturer's results and conclusions will anticipate further instruction from him in the future.

THE BASIS OF PUBLIC HEALTH LAW.

THE fundamentals of public health law in America have lately been analysed by an American health official [1] under the triple headings of statutes, regulations, and precedents. The same three headings would stand as the fundamentals of the law in England also, but in England they would not mean quite the same thing. By statutes in England we understand the Acts of a single supreme and sovereign Parliament. In America statutes mean the State and federal constitutions and the legislation of congress and of the various State assemblies; there is a dualism of State and federal law-making. Public health law in America reveals itself on analysis as part of the "police power"—namely, the inherent sovereignty exercised by governments for the protection of morals, safety, well being, and good order. When the Federal Government was created in America and was entrusted by the several States with certain rigidly limited powers, the States reserved to themselves the sovereign control over their own internal affairs. Public health legislation, therefore, is a power necessarily exercised by each separate State for itself; it is not a power of the Federal Government unless there is some external or inter-State aspect such as the quarantine of immigrants. The famous Fourteenth Amendment to the Federal Constitution may be invoked to challenge any arbitrary invasion by a State of an individual's rights of "life, liberty, or property" and to contest any State law which can be stigmatised as unequal or partial in its application. The Fourteenth Amendment, however, has been overworked; it was never designed to interfere with the proper exercise of police powers by a State legislature, as the American courts have frequently observed. Public health, then, is mainly a matter for State legislation. The second fundamental (regulations) means much the same to Americans as it means to us—the rules and ordinances of health boards and municipal councils. There was for a time some doubt in America whether the legislature could delegate rule-making power to an administrative body. In a Wisconsin case it seems to have been held that the State board of health was a purely administrative unit possessing no regulatory power and incapable of receiving it. But the United States Supreme Court and various States Courts have removed the doubt and have made it clear that the State legislature may delegate the regulatory authority. In England, as the Donoughmore Committee on Departmental Powers will doubtless tell us when it produces its report, the delegated legislation of departments and local bodies has long been an accepted feature of our administrative system. Finally, the third fundamental (precedents) means the same thing to America and to England—the decisions of the law courts. Here the only difference between the two countries seems to be the fact that American judges have a wider power of checking public health activities as ultra vires. Owing to the rigid written constitutions of both State and Federal Governments, the American law courts may be invoked to examine whether an Act passed for an ostensible or declared purpose is a reasonable exercise of legislative power—i.e., whether it is properly related to, and appropriate to effect, the purpose sought to be accomplished. The English observer, who knows that the Parliament at Westminster is supreme and unfettered in its sovereignty, may find it hard to understand that the public health legislation of an American State assembly can be held in check by the judiciary.

On the other hand the American observer may be surprised at one of the checks on public health administration which is presumably peculiar to England—namely, the system of disallowance and surcharge by district auditors. Section 247 of the Public Health Act of 1875 enables them to disallow any item of account which is illegal and to surcharge any deficiency or loss incurred through negligence or misconduct. This power has had a remarkable effect in restraining the ultra vires activities of local authorities and in checking corruption and illegality. The Poplar wages case, decided by the House of Lords in 1924, in effect extended the power to disallowance or surcharge where the expenditure is for a lawful purpose but is deemed by the district auditor to be excessive or unreasonable. Lord SUMNER pictured the district auditor as a man with a duty to restrain expenditure within proper limits and with a mission to find if there is any excess over what is reasonable. Critics have remarked that the resultant situation is administratively unfortunate. Mr. W. A. ROBSON, for instance, in his recent study of "The Development of Local Government," complains that district auditors

[1] The Fundamentals of Public Health Law. By James E. Bauman, assistant director, Ohio State Department of Health; member of the Columbus (Ohio) Bar. U.S. Public Health Reports. March 20th. Pp. 631.

have been appointed without any practical experience of local government. Their outlook, he says, appears to be excessively narrow and lacking in vision. "The type of man who regards it as improper for a great local education authority like the London County Council to provide necessitous school-children with fruit, cod-liver oil and malt extract under the Education (Provision of Meals) Act, does not possess the mental equipment likely to produce the most satisfactory method of audit."

THE TREATMENT OF TETANUS.

In few diseases is prevention so simple and so desirable as it is in tetanus. But the comparative rarity of the infection—at least in some parts of the country—makes it all too easy to neglect the prophylactic use of antitoxin. The incidence of avoidable cases has lately been causing concern in France, and, as our Paris correspondent has related,[1] a committee has been set up to define the circumstances under which specific prophylaxis should be undertaken. The report of this committee will be welcome, but there are many cases in which the original injury does not come under medical supervision in time for preventive measures. Commonly the history is of some apparently trivial wound, such as an infected blister, which is treated by the patient himself until symptoms of tetanus begin. Sometimes, again, there has been no discovered port of entry for the infection, or mild tetanus has developed in spite of antitoxin. Taking all these together, cases are still sufficiently frequent—especially in agricultural districts—for the problem of actual treatment to be a very real one.

Such treatment may be directed along three lines: it may aim at neutralising the toxin, at preventing further absorption by dealing with the source of infection, or at stopping spasms and maintaining strength. As regards the first there has so far been no very general agreement about the dose of antitoxin to give. The fact that the toxin probably reaches the central nervous system by the perineural lymphatics and becomes fixed to the nerve-cells has led to the belief that it is not much use to inject serum once the disease has developed. Of the various possible routes, the intrathecal has seemed the most appropriate, and the number of units given in this way has been necessarily limited by the bulk of the remedy. During the past year, however, there have been several reports which suggest that very large doses of antitoxin, for the most part intravenous and intramuscular, are more effective. Administration of these doses has been facilitated by the greater concentration of antitoxin in the sera now available. C. S. Sherrington showed in 1917 that antitoxin in suitable quantity would protect monkeys in which the tetanus was artificially produced by injection of toxin, and A. E. Paterson[2] in Australia has attempted to apply these results in the treatment of human tetanus by using massive doses corresponding to those employed by Sherrington. In a series of 26 consecutive cases he has had 19 recoveries. The dosage used was considerably larger than any previously given. At the outset he injected 100,000 U.S.A. units intravenously and 40,000 intramuscularly, and he repeated the former injection every 12 hours and the latter every four hours until the clinical condition was much improved. In some of his cases the total number of units injected approached 2 million. M. H. Manson,[3] in America, agrees in attributing failure of treatment to late administration of antitoxin and inadequate dosage. While all routes may be used, he regards the intravenous as the most important. An adult, he says, should be given at least 100,000 units in the first 24 hours and not less than 300,000 altogether.

This week, at p. 1075, we publish an account of an attempt to neutralise toxin by intrathecal injection of carbolic acid. This treatment is based on the observation that carbolic acid destroys tetanus toxin in vitro, and that carbolic acid plus toxin will protect guinea-pigs. A solution of 1 in 400 was found to be the strongest which would not cause cellular damage, and solutions of this strength were used intrathecally with apparent success, 10 out of 14 cases recovering. Carbolic acid has advantages over antitoxin in that only one or two injections have to be given and it is not expensive. The only obvious disadvantage is its liability to damage the kidneys. As yet however both massive dosage and carbolic treatment are no more than on trial; the assessment of results is notably difficult in tetanus because prognosis is uncertain in any given case, and the results of treatment correspondingly doubtful. W. W. C. Topley and G. S. Wilson[4] have suggested that the apparent discrepancy between Sherrington's results and those obtained by clinicians may be due to the fact that the former was treating a disease produced by a measured dose of a toxin, while the latter are trying to neutralise toxin which is continually being given out by virulent bacteria in a wound. If this is a correct explanation the thorough cleansing of any infected wound at the earliest possible moment, even though the disease has developed, assumes a very important place in treatment. Hitherto much interference with the local lesion has been deprecated.

FLORENCE NIGHTINGALE.

Tuesday last was the birthday of Florence Nightingale, who would have been 111 years old, and whose long life extended almost to the outbreak of the Great War. It is not necessary to say more of her splendid work than to endorse the appeal, made in the *Times* by Dame Sarah Swift, to all who revere Florence Nightingale's

[1] The Lancet, March 7th, p. 549, and May 9th, p. 1049.
[2] Med. Jour. of Australia, 1930, i., 832.
[3] Minnesota Med., Feb., 1931, p. 112.
[4] Principles of Bacteriology and Immunology, London, 1930.

memory, that they should rally to the support of the British Red Cross Society which has selected her birthday for an Empire celebration. The significance of what she did for humanity is so identified in all minds with her achievements—humanitarian, administrative, and scientific—in the Crimea, that it is inevitable to regard the pattern of nursing, which was the outcome of these endeavours and accomplishments, as the complete story of nursing—a story having its first chapter written in Scutari and owing its sequels to extensions and variations of an original text. It is not doing honour to one of the greatest women whom this country, or indeed the world, has seen to regard the profession of nurse from this point of view; and here FLORENCE NIGHTINGALE, with her large and liberal education, and profound religious convictions, would have been quick to agree.

It was the teaching of Jesus which led to the voluntary ministrations of Christian women nearly 2000 years ago among the suffering poor, and this FLORENCE NIGHTINGALE'S preparatory work at home was designed to follow. On those early deaconesses the practice of the charity that is Love was enjoined by the Great Teacher. This work of the Primitive Church, in a more organised form, fell to be discharged by the religious Orders, and when at the Reformation a great part of the civilised world repudiated the authority of the Roman Catholic Church, secular schemes to replace the work of the Orders came into being. The duties of the nurses were then divorced in Protestant countries from religious inspiration and became largely domestic. The sad position to which the service of nursing, whether definitely associated with religious practice or rendered as domestic duty, had fallen as recently as 100 years ago became obvious to all who thought on such matters when the rise of scientific knowledge made the fundamental doctrines of hygiene common property among the intelligent. The supreme merit of FLORENCE NIGHTINGALE'S work lies in the fact that she, and in the first instance she alone in the world, perceived three things and perceived them as component parts of one ideal. She realised the need for a deep vocational call as clearly as any deaconess of the early church would have done; but she saw that this spirit of charity needed for its practical expression a measure of scientific training; and, thirdly, she learnt at the outset that the nurse, thinking rightly and rightly equipped, should form a unit in an organised scheme, under which results would be produced immeasurably larger than the sum of individual efforts. And just as FLORENCE NIGHTINGALE knew that nursing as she found it, when her great call came, needed above all things the information of modern science, so to-day would she know that, while the principles which she instilled remain fundamentally sound, the actual methods of training nurses must be perpetually modified by the growth of wisdom, by the lessons of science, general and special, and, above all, by the changes in social laws and customs inevitable upon the progress of civilisation.

ANNOTATIONS

THE DRUGS OF ADDICTION.

HEROIN has acquired the evil distinction of being the worst-known drug of addiction. The general clinical opinion in this country is that its pharmacological action is distinct from that of morphine, and that therefore it is indispensable for medicinal use. This conclusion is of considerable practical importance, because the medicinal use of heroin renders its suppression as a drug of addiction very much more difficult. Few comparative studies have been made of the pharmacological actions of heroin and morphine, and for this reason a paper recently published by two members of the U.S. Public Health Service [1] is of particular interest. These authors have studied the action of morphine, heroin, and codeine on the rhesus monkey. They first measured the minimal lethal doses. All three drugs produced death from coma and respiratory failure, but heroin was found to be at least ten times as toxic as the other two drugs, the approximate minimal lethal doses in milligrammes per kilo body-weight being: morphine sulphate 100 (85); heroin hydrochloride, 7 (1·6); codeine phosphate, 80. (The figures in parentheses show the smallest dose that produced death.) These quantities are much greater than the corresponding human doses, for 1 mg. per kilo corresponds to an adult dose of gr. 1. But since the usual therapeutic dose of heroin is at least one-third that of morphine, and these results suggest that the difference between their toxicities is considerably greater, it would appear that heroin is employed with a considerably smaller margin of safety than is morphine, and for this reason has earned its reputation of being very reliable in its action in relieving pain and cough. The same authors also examined the power of morphine, heroin, and codeine to produce addiction, by giving them to the macaques in increasing doses for prolonged periods. Well-marked tolerance was produced for all three drugs, although they all caused considerable impairment of health. Addiction was measured by periodically withdrawing the drug and noting the symptoms produced. Morphine produced withdrawal symptoms after about four months, and after a year withdrawal caused collapse associated with a fall of temperature of several degrees; in one case death resulted. The charts and photographs given in the report provide clear evidence of the physical nature of the reaction produced by withdrawing morphine from an addict. Heroin produced addiction more slowly than did morphine, for withdrawal symptoms did not occur until the drug had been given for a year. This difference may have been due to the fact that the doses of heroin were only one-tenth as great as the doses of morphine. Codeine never produced any symptoms of withdrawal. Heroin, morphine, and codeine produced cross tolerance; in the case of heroin and morphine one drug relieved the symptoms produced by withdrawal of the other, but codeine produced no relief of the

[1] Kolb, K., and DuMez, A. G.: Public Health Reports, U.S. Public Health Service, 1931, xlvi., 698.

symptoms caused by withdrawal of morphine or heroin. The experimental evidence therefore confirms the clinical belief that codeine is not a drug of addiction.

THE EPIDERMIS AND ULTRA-VIOLET RADIATION.

THE permeability of human skin to ultra-violet rays has been investigated at the Lister Institute by N. S. Lucas,[1] who has repeated some old observations of Hasselbach, using a somewhat similar method and correcting for various sources of error. Since the layers immediately under the epidermis are vascular, Lucas experimented with epidermis, which was obtained from the front of the forearm by blistering. The source of light used was a Hewettic quartz mercury-vapour lamp, which, of course, does not give the same restricted range of wave-length as the sun does. Owing to the presence of a small proportion of ozone in the earth's troposphere all rays of a shorter wave-length than 3300 A (Angstrom units) are filtered out, being cut off completely at 2850 A. Lucas studied the transmission of waves from 4370 to 2560 A and found that the longer waves were almost completely transmitted. He says, referring to what he considers his most representative experiment: It appears then that in the range of wave-lengths of the sun's light arriving at the earth's surface which are active in the cure of rickets amounts varying from 55 per cent. for wave-length 313 $\mu\mu$ (=3130 A) to 26 per cent. for wave-length 294 $\mu\mu$ (=2940 A) may be transmitted to the dermal capillaries.[2] He concludes that the apparent absorption of ultra-violet light by epidermis as determined by the usual methods of photometry is not entirely true absorption, but is in part a scattering of incident light by the epidermis which is not optically homogeneous. This scattering causes much less loss of transmission in vivo than under experimental conditions, and is dwarfed by true absorption for short waves of 3000 A or less. The curves of absorption, he remarks, are very similar to those of many proteins and amino-acids. His values are very much higher than those found by Hasselbach. It appears from this work that the clean epidermis is a fairly good transmitter of those beneficial ultra-violet rays which fall upon it and is selective against the shorter rays which are not found in the solar emission as we receive it, but are present in unscreened artificial ultra-violet light.

CAUSES OF DEATH AMONG DOCTORS.

FROM time to time the *Journal* of the American Medical Association analyses the records of deaths of physicians published in its columns, and the latest group is made up of 2943 which occurred in 1930.[3] Although these records may err through missing some members of the profession who died young, it is interesting to compare them with our own occupational data [4] which deal with all medical practitioners who died in this country during 1921–23 and include 1578 deaths. In the United States the average age at death was 63·7 years; in England it was just below 63 In the States 4·4 per cent. of deaths were due to accidents (half being motor-car accidents), and in England 3·7; in the States 2 per cent. were due to suicide, and in England 2·2 per cent; in the States 1·3 per cent. were due to cirrhosis of the liver, and in England 1·4 per cent. In both countries heart disease claimed most deaths. Next in order followed, for the States, cerebral hæmorrhage, pneumonia, nephritis, cancer, and arterio-sclerosis; and for England, cancer, pneumonia, cerebral hæmorrhage, arterio-sclerosis, and nephritis. It is significant that, although the order is slightly different, the same seven great causes of death for both groups claim most victims. In the absence of any census of physicians in America, no death-rates can be calculated. But our own records, which give mortality-rates comparable with the general standard, show the death-rates which are unduly high to be those of suicide, cirrhosis of the liver, accidents, digestive diseases, appendicitis, and pneumonia, in the order given. The medical profession shares several of these high rates with other professions; but pneumonia and accidents seem to present special risks for the doctor, which is easily explained by the conditions of his calling.

[1] Biochem. Jour., 1931, xxv., 1, 56.

[2] The author here uses $\mu\mu$ as in Germany to denote a thousand millionth of a metre. In the United States of America $\mu\mu$ denotes a million millionth of a metre. The ambiguity is a strong plea for the universal adoption of the Angstrom unit or "tenth metre," the equivalents of which we have added.

[3] Jour. Amer. Med. Assoc., April 11th, p. 1230.

[4] Occupational Mortality. Registrar-General's Decennial Supplement. England and Wales. 1921. H.M. Stationery Office. 1927.

SALE OF PROPRIETARY MEDICINES IN U.S.A.

WE have read with sympathetic interest the details of a proposed plan for the control of the sale of proprietary remedies in New York. The author of the scheme is Dr. Samuel M. Gordon, secretary of the council on dental therapeutics of the American Dental Association, who was invited by the Commissioner of Health of New York to make a survey of the present drug administration of that city and offer suggestions how to bring its activities into line with present-day notions. The sale of proprietary medicines in the United States is already subject to control; the operation of the Pure Food and Drugs Acts and the special regulations adopted in various States suffice to prevent many of the practices which are common enough in this country. Nevertheless, American legislation has not sufficed to suppress the evil, and although the heyday of the business seems to be past in the United States and the old method of advertising may have been suppressed, "it has been replaced," says Dr. Gordon "by a more subtle and more insidious exploitation of articles for various groups of ill-defined conditions, based on an evasive appeal to the health desires of the public . . . . Patent medicines are exploited by means of subtly written advertisements in such manner that the uncritical and none too careful reader is allowed to read into general, and, as a rule misleading statements, that he or she is suffering from diseases or conditions for which a patent medicine in question possesses curative properties." The cunningly worded devices do not contravene the law, although they are obviously contrary to its spirit. What has happened is that the Drugs Acts having made the "lie direct" a penal offence it has become necessary for medicine-mongers to resort to "the lie by inference." It is the desire of the New York Health Department to outwit the users of the "lawful" form of falsehood, and it is thought that this could be accomplished by putting Dr. Gordon's scheme into operation.

Most of us know the dexterous member of the family who tells us without looking at it which particular card "you hold in your hand." The trick depends upon the conjuror's ability to make us

pick the card he intends us to pick. Dr. Gordon writes :—

> To-day advertising has invested itself with a psychological basis intended to make people purchase something for which there is no intrinsic need. It does not appeal to real needs, but it appeals to desires stimulated by the wording of advertising. When applied to clothing, automobiles, radio, and the like, the loss is merely an economic one. Where applied to patent medicines the aim is to make well people believe they are sick, and sick people believe they are very sick. A stimulation mentally to force the purchase of a patent medicine is thus brought about by adroitly worded advertising in newspapers . . . . Consequently this is not merely an economic waste but presents an actual menace to the physical and mental well-being of the country.

The morality of salesmanship which aims at inducing people to buy something they do not want and cannot afford to pay for has often been argued. It would, however, require a good deal of special pleading to whitewash the salesman or the copy-writer who, for the sole purpose of gain, succeeds in making some deluded person buy a cure for cancer or a pill to rejuvenate the arteries. Dr. Gordon's method would be to put such a person in gaol. The case as put by him furnishes convincing evidence of the need of further action to protect the fool from his folly. One difficulty lies in the fact that even people of culture are among the victims from the nostrum-monger and a considerable proportion of his earnings comes from the pockets of learned ignoramuses. If, then, in spite of all their enlightenment some apostles of culture are not averse from swallowing rubbish in the guise of nostrums, what is to be done to get down to the masses? Dr. Gordon believes in specialised education. He would invite the citizens of New York to write to the Health Department for information and advice on specific medicines in which they are interested. He would set up what he calls a rogues gallery. He would invite newspaper proprietors to submit advertisements of patent medicines to the Department before publication and to undertake to require advertisers to confine statements to the recommendations of the Board of Health, and his plan for dealing with those publications "which show a tendency to subvert the public health interest to financial returns" is to make them see light by a carefully planned educational campaign through the medium of other papers which are willing to follow the Department in their campaign for honesty and decency in medical advertising to the public. If the experiment is tried, as we hope it will be, the results will be examined with interest here.

A SEROLOGICAL TEST FOR CANCER.

Dr. Bendien's book,[1] which has been having much publicity in the daily press, proves on examination to be a soberly written, highly technical dissertation on the physico-chemical state of the proteins of the blood-serum. The investigations are based on a flocculation reaction which occurs when a solution containing mixtures of sodium vanadate and acetic acid in slightly varying proportions is added to the serum. Twenty different solutions of these sodium vanadate and acetic acid mixtures are placed in test-tubes containing equal amounts of normal human serum. Flocculation begins in the tube containing mixture No 6, rises to a maximum in mixtures 14 and 15, and then diminishes until the end of the series when it disappears in No. 20. The various factors which might affect this reaction have been studied in great detail—for example, viscosity, sedimentation of red corpuscles, and relation of globulin to albumin. One point to which Bendien attaches importance is the change produced in the reaction, if the serum has been inactivated previously by heating to 56° C. for half an hour. The flocculation then does not begin in mixture 6, but only in mixture 7. In a number of pathological conditions this shift of the flocculation reaction is reversed after heating the serum—that is to say, the reaction develops before mixture No. 6. From all these considerations Bendien arrives at the conclusion that in certain pathological conditions a new type of protein appears in the serum. That this is true is confirmed, he thinks, by the finding that in different diseases the flocculated material gives different and characteristic pictures on spectro-photometric examination. If the change in the reaction occurs regularly in the serum of patients suffering from cancer, especially in the early stages, it should form the basis of the long-sought serological test. On this point Bendien states that flocculation below mixture 6 indicates the presence of cancer or tuberculosis. He even believes that a disposition to these diseases finds expression in a shift of the flocculation reaction which differs for the two diseases. But the evidence he submits on this aspect of the problem is disappointing. There are now on record quite a number of serological reactions in which the serum of cancer patients shows differences from that of normal persons. But since similar differences are exhibited by serum from patients suffering from other diseases the diagnostic and even the theoretical value of these reactions is small. The material submitted by Dr. Bendien to test the diagnostic value of his reaction is, as he himself admits, not very extensive, and he is careful to point out that the subject requires further study. So far as it goes there is little evidence that the reaction is clinically specific for cancer.

[1] Specifische Veränderungen des Blutserums. Ein Beitrag zur serologischen Diagnose von Krebs und Tuberkulose. By S. G. T. Bendien (Serological Laboratory, Zeist, Holland). Jena: Gustav Fischer. 1931. Pp. 99. M.5.50.

FIRST-AID ON THE ROADS.

APPROPRIATELY enough for Safety Week in this country, Mr. Pierre de Bernonville, secretary of the Standing International Commission for First Aid on Highways, gives an account[1] of the rapid evolution of first-aid on the roads during the last few years. It is satisfactory to note in his international review that the first country to organise this work systematically was Great Britain. Some ten years ago the British Red Cross Society and the Order of St. John of Jerusalem set up a high-road service, using motor ambulances from their war stock. A little later, Germany, Belgium, France, and Switzerland took similar steps. Other countries to follow were South Africa, Italy, the United States, and, more recently, Denmark, Holland, Norway, Persia, Poland, Siam, and Sweden. In March, 1930, the Central International Touring Board, which is the supreme authority of the touring organisations, and comprises the Automobile Club and the Touring Club groups, pronounced in favour of a policy of coöperation between all bodies interested in the organisation of first-aid posts on highways. The Board and the Red Cross quickly established satisfactory working relations, and the matter was placed on the agenda of the Fourteenth International Red Cross Conference in Brussels. Here it was agreed to constitute a standing commission to assure uniformity of action; the first meeting of this *Commission Internationale*

[1] Review and Information Bulletin of the League of Red Cross Societies, May, 1931.

Permanente de Secours sur Route was held at the offices of the League of Red Cross Societies in Paris last November, and at its second meeting in February methods of establishing satisfactory collaboration between the Red Cross and tourist bodies were studied, as was also the problem of first-aid posts at points where roads cross frontiers. The next meeting of the Commission will be held in November. Mr. de Bernonville's paper concludes with a statistical analysis of the mortality-rates from road accidents per 100,000 in various countries. While this rate is 19·5 for the U.S.A., it is only 8·4 in England and Wales, and as low as 2·1 in Norway.

THE DIFFICULT CHILD.

THERE always have been difficult children, but the "problem child," as the unfortunate youngster is sometimes called, has come to occupy a prominent place in the public eye only of recent years. This may be at least partly due to the fact that in the days of unrestricted families children very largely brought each other up, and on the whole did not do their work too badly. Now that families consist of ones and twos, and even the moderate-sized family is so spaced out that every child is almost an only child, the attention of adults is heavily focused on the young, and their interaction is very probably bad for both. Among many recent discussions of this subject were six lectures delivered under the auspices of the Jewish Health Organisation at Toynbee Hall last summer. They were published in *Mother and Child* and are now reprinted as a pamphlet, in the pages of which everyone interested in the difficult child will find food for thought.[1] Dr. Emanuel Miller deals with the general characteristics and history of the problem child and with the rôle of the psychiatrist and the coördination of social, psychological, and medical factors in his treatment. Dr. Noel Burke describes the management of a child-guidance clinic, and the physical factors in the child's make-up. Miss Beatrice Robinson discusses the functions of the social worker, and Mr. M. Fortes the intellectual endowment of the difficult child, who is by no means usually defective in brains. It is an essential feature of the child-guidance system, imported from America, that the child is studied by a team of whom only one or perhaps two members are medical. This has many advantages, not the least of which is that stressed by Dr. Miller when he says that the case conference exists psychologically in order that those concerned in the case should understand one another; that, for instance, the psychiatrist should meet the teacher and discover whether the problem is a function of the teacher's personality, and that the teacher in turn should tell the psychiatrist frankly if she thinks that he is manufacturing a case. The system also enables the psychiatrist to deal with a very much larger number of cases than would be possible if he had to undertake the necessary research himself. It has, however, one peculiar feature which may prove of great importance and to which more attention should perhaps be directed than has been done so far. This is that the home has been made peculiarly the province of the social worker. The psychiatrist himself never sees the home and does not always see the parents. Yet it is a truism to say that the parent is the principal factor in the genesis of the difficult child. It is also a truism to say that the parent is the most difficult part of the child's environment, both for the child and for the psychotherapist. It is certainly true that in many cases some simple misunderstanding or maladjustment can be explained by a gifted social worker to an intelligent and coöperative parent. An alteration, for instance, in the child's diet or punishments or working hours may produce the desired result. There is also a large number of cases where the parents are not intelligent or coöperative, and these can be dealt with as effectively by the social worker as by anybody. It may be necessary to dismiss them as hopeless and to remove the child from them, or they may be amenable to lengthy, patient, tactful persuasion such as she, better than anyone else, knows how to apply. But all too often the child's neurosis is its reaction to a genuine psychological failure on the part of the parent, and is concerned with just that problem over which its parents have stumbled or from which they have turned away. In these cases the only genuine treatment for the child is psychological treatment of the parent; anything else is merely patching. Is the medical profession wise in tacitly allowing this type of case to be handled by the social worker? It may be argued, indeed, that only the skilled psychotherapist himself can determine which case falls into this class, and it is certainly true that no more delicate and difficult task confronts him anywhere than the task of laying bare to one or both parents the real secret of their child's misbehaviour when that secret is their own most tender spot. The problem of the parent has not been wholly solved by the child guidance scheme.

[1] Obtainable from the Secretary of the Organisation, 19, Dorset-square, N.W.1; price 1*s*.

A COSMETIC QUESTIONAIRE.

THE treatment of hypertrichosis has been made the subject of continental inquiry.[1] The great majority of authorities are emphatic in their condemnation of X rays for this purpose, a notable exception being Dr. Guido Holzknecht, who holds the chair of medical radiology in Vienna, and whose unrivalled experience entitles his opinions to respect. He believes that X ray treatment has its place in selected cases, provided that the risk is realised and technique is faultless. He would base his selection on the degree and localisation of growth, the character of the skin, and the patient's age. He would not apply X rays to lanugo hairs, to sporadic single strong and coarse hairs, to symmetrical moustache hairs, or to hair on the parotid area. The skin over the extremities he regards as more sensitive to X rays than that of the face; persons with a delicate complexion are more liable to injury than those with a thick sebaceous type of integument. He would allow a period of months to elapse between each epilation, the total of which should not exceed five. The existence of a controllable endocrine factor should be borne in mind, and search made for ovarian or suprarenal dysfunction. In no case would he promise a cure, any more than in eczema or tuberculosis. F. Juliusberg thinks well of a combination of X rays with thallium acetate by the mouth, as already used with success for temporary epilation in tinea tonsurans. At present he relies chiefly on the time-honoured electrolysis or the more recent destruction of the hair follicle by instantaneous electro-coagulation. Drawbacks to these are the waste of time, the expense, and the considerable chance of recurrences. It is not a good method when the hairs are close together on account of the risk of scarring.

[1] Dermatologische Wochenschrift, April 4th.

The pumice-stone treatment demands great patience to avoid irritating the skin; it has its use over large areas, and if persisted in for years undoubtedly promotes permanent atrophy of the follicle. Chemical depilation with barium and strontium salts also brings the danger of irritation, and sufferers would be wise to prefer extraction with the epilation forceps for isolated hairs, or the safety razor. The new electric clippers, set at 1/10 mm., give safe if imperfect results. E. Langer (Berlin) condemns X rays and gives the following detailed directions for the use of pumice-stone. After a preliminary shave (the upper lip is the main indication), 5–20 per cent. pernatrol soap (H_2O_2) is applied daily for 5–10 minutes and well lathered; a smooth piece of pumice-stone is then gently rubbed over the hirsute area for about the same time. The treatment must be intermitted on the slightest occurrence of irritation. Infection is prevented by the application of eau de cologne along with a non-greasy cream and powder. G. Nobl (Vienna) prefers electrocoagulation to electrolysis, because its effect is limited to the point of the needle and does not extend along the shaft. He condemns X rays, as also does Prof. H. T. Schreus (Düsseldorf), who states that the removal of cosmetic stigmata has been sometimes more than offset by the production of hoarseness from injury to the larynx, by xerostoma from damage to the parotid, and even by epithelioma. P. Unna, jr. (Hamburg), agrees with Nobl on the advantages of electrocoagulation, but he uses X rays according to Holzknecht's technique in very pronounced cases to weaken the growth of hair when a combination of other methods is used to achieve the final result.

SURGERY IN ANIMALS

In his oration before the Medical Society of London, reported on another page, Sir John Rose Bradford spoke wisely of the lessons to be learnt from comparative medicine. Many of the leaders of our profession have sought such inspiration in the past and have found in the solution of problems by animals a help to similar conundrums in man. Surgeons will therefore, we think, find a perusal of the March issue of the *Veterinary Journal*, a special surgical number, of more than ordinary interest. They will meet here a group of men engaged on similar work to their own and tackling it in the same way, but with particular problems and difficulties inherent in the nature of their patients.

Man has developed a fraternal interest in the beasts which serve him, that prompts him to prevent any suffering that can be avoided, and to alleviate it when it appears. The easiest way to end animal suffering is to kill the diseased and the injured; curative treatment, which may be lengthy and in some cases expensive, is primarily undertaken not for the benefit of the patient but of its owner. Most veterinary operations are done either to overcome some disability interfering with the usefulness or earning capacity of the animal as a servant, or in the case of pedigree stock, to preserve it for stud purposes. Castration is a familiar example of the first class of operation, done in creatures ranging from cats to cattle, to render them more docile, and in birds to increase their weight. Sporting animals suffer from many common disabilities for which surgical aid is sought. Roaring, due to paralysis of one vocal cord, usually the left, renders a horse, otherwise perfectly sound, unfit for hunting or racing. Tracheotomy has been carried out for years to overcome this disability, but has the disadvantage of unsightly appearance and the need of frequent dressing; more recently the ventricle-stripping operation, advocated in this country by F. T. G. Hobday, has largely replaced the older method. Dogs have, till lately, come under the veterinary surgeon chiefly as household pets. Being bred over centuries under conditions remote from those under which their ancestors were evolved, living in circumstances of food and housing not differing greatly from those of their masters, and surviving often far beyond the physiological old age of an animal under natural surroundings, they suffer from many of the diseases to which human beings are liable. For this reason, and because of affection of their owners, canine surgery includes many of the procedures common in the hospitals of man. Dentures and spectacles have even been supplied to make good the losses of old age. Greyhound racing, moreover, has brought the dog that may win large sums for its owner, and has created the science of canine orthopædics.

Fractures are common in animals, especially in horses used for hunting and racing, and in dogs, when they are usually the result of a motor accident. In the larger quadrupeds the difficulty of reducing and splinting one of the limb bones is almost insuperable, and the animals are afterwards useless except for stud purposes. They are usually shot, though plating may be attempted in valuable horses. Fractures of the maxilla are, however, treated by wiring. Dogs are much more amenable patients and their fractures are treated by splints, of wood or plaster, with satisfactory results, a small degree of lameness detracting little from the animal's usefulness. Fractures in birds are treated with gum bandages.

The interest of surgeons in veterinary work is often of a more direct kind. Operative surgery is never taught in this country as it is in America, by instruction in operating upon animals, but surgical research in many of its branches demands animal experiments, and the research department of a modern hospital is a counterpart in miniature of a veterinary hospital. On the whole the conditions which govern animal surgery bear a striking resemblance to those under which we work. The majority of our instruments have their counterpart in the veterinary theatre, but those used on the larger animals are naturally modified greatly to obtain increased power. The theatre is similar in lighting and cleanliness; the operating table is a surgical one in miniature, for it is only used for small animals. The larger ones are operated upon either standing or lying according to the anæsthetic. Anæsthesia is produced by the recognised methods. Chloroform and ether are used for inhalation, avertin for rectal anæsthesia, and novocain or the ethyl chloride spray for local anæsthesia. Spinal anæsthetics have little application in animal surgery. Depilation is a more difficult problem in animals than in man; in some the razor is used, but it is more common to apply a depilatory paste of 25 per cent. barium sulphide, left on for five minutes. It is fortunate that dumb creatures do not suffer from pre-operative anxiety. The operation itself is conducted along lines that are familiar. The sutures and ligature materials are those used by surgeons, but, owing to the nature of the operation performed, many of the procedures may be strange. The abdomen is commonly opened by a longitudinal incision, but in experiments on cats it has been stated that transverse incisions heal with less trouble, and it would be interesting to know whether any veterinary surgeons have had a similar experience. A writer in the *Veterinary Journal* employs MacBurney's incision for

ovariotomy in a mare. The commonest of our abdominal operations, for appendicitis, peptic ulceration, and gall-stones, do not appear to be in demand, but strangulated inguinal hernia occurs in dogs. Intestinal obstruction from enteroliths or swallowed foreign bodies takes proportionately a much more important place, and is treated by enterostomy, or in late cases, by resection. End-to-end suture of the intestines of dogs and cats is found to be unsatisfactory owing to the small lumen and thick walls of the gut, and lateral anastomosis is preferred. Pyometra is common in bitches, demanding hysterectomy.

It is in post-operative treatment that the difference between human and veterinary surgery becomes more apparent. Animals, with the exception of race horses and some highly bred dogs, are of hardy stock; they do not suffer from surgical shock unless the operation has been exceptionally severe, and their tissues heal well. But the patient must be returned to a kennel or stall, which, however cleanly, is far from sterile. Dressings may be applied but are never left alone, and in most cases are soon licked or bitten off; rest to the injured part is extremely imperfect. In this respect dogs and cats, when their confidence has been gained, make the best patients. But in general the veterinary surgeon has to rely on antisepsis rather than asepsis during the post-operative period, and while serious infection is rare so is primary union.

SEDIMENTATION-RATE IN TUBERCULOUS CHILDREN.

SINCE a department for tuberculous children was opened at the new St. Johannes Hospital in Budapest Dr. L. von Csöke has investigated [1] the sedimentation-rate of the red blood corpuscles for nearly every patient admitted. The method of Westergren was used throughout and the results standardised for the degree of sinking observed in an hour according to the accepted formula. Altogether 329 children were investigated with more than 1000 total sedimentation-rate determinations. A large proportion of these children suffered from tuberculosis of the bronchial lymphatic glands, a condition in which signs and symptoms are scanty and it is often difficult to establish whether the disease is active or latent. Dr. Csöke considers that the border-line value for the sedimentation-time in such cases is 12 mm. Over this value were 108 cases of active bronchial gland tuberculosis with an average rate of 18 mm., while 52 cases with latent disease showed an average rate of 10 mm. This is in accord with previous observations by Rókay, who considered rates of over 13 mm. in fever-free cases as in favour of active disease in the glands. The sedimentation-rate in six cases of what he calls "epituberculous infiltration" also gave an average of 18 mm., but the association with bronchial gland involvement with this condition made it difficult to draw deductions. The results for pulmonary tuberculosis in children followed much the same lines as those already established for adults in numerous centres. With fibrotic cases an average of 40 mm. was obtained, while for more acute exudative cases the average rate was 100 mm. Four cases of miliary tuberculosis gave rise to some difficulty because the values varied from 6 to 80 mm., and it is known that in moribund cases the sedimentation-rate may closely approach the normal. In order to obtain more help from the sedimentation-rate in distinguishing between cases with good and bad prognosis Dr. Csöke carried out a series of investigations in which the rate for each quarter of an hour was noted. The results obtained for 52 children could be divided into three groups. In the first the maximum degree of sedimentation was observed in the first half-hour and was an indication of a serious degree of disease. The second group comprised those cases where the maximum degree of sedimentation occurred in the second half hour; here the clinical features were slight and the prognosis good. In the third group sedimentation-rate was nearly regular for each 15-minute period in the hour; this occurred in the terminal stages of the disease, being also a feature of physiological sedimentation. The value of this differentiation can be made clearer by an example. If a child is found, for instance, to have a sedimentation-rate of 25 mm. it is possible from a consideration of whether the rate is maximum in the first or second half of the experimental period to say that the disease process is serious or slight respectively. Very high values for the sedimentation-rates were obtained in 18 cases of surgical tuberculosis; the highest rate of the present series was in a child with extensive spinal caries who gave a rate of 192 mm. It was observed that the sedimentation-rate in three cases of bone and joint tuberculosis was closely associated with the presence of intercurrent complications, and indeed could be taken as a very early indication of their being present, for example, weeks before clinical evidence of abscess formation. Dr. Csöke discusses, in light of his own and others' results, some of the theoretical aspects of the sedimentation-rate, but he is unable to come to any definite conclusion as to the exact mechanism. He points out however that in children the physiological values are higher than in adults, and that before the age of 10 years the sex differences, well recognised in adults, are not so pronounced.

[1] Jahrb. f. Kinderh., April, 1931, p. 216.

THE next session of the General Medical Council will commence at 2 P.M. on Tuesday, June 2nd, under the Presidency of Sir Donald MacAlister.

WE regret to announce the death of Dr. Thomas Robinson Glynn, for 40 years professor of medicine in the University of Liverpool. He died on May 12th at St. Asaph at the age of 90.

LONDON HOSPITAL MEDICAL COLLEGE.—Lord Macmillan will distribute prizes and certificates to students of this College on Wednesday, June 24th.

JOINT TUBERCULOSIS COUNCIL.—A post-graduate course on tuberculosis (study tour) has been arranged by this Council to take place in Holland. Various institutions for combating tuberculosis in Holland will be visited and the methods employed will be explained. The tour will begin on June 29th and end on July 4th. There will also be a post-graduate course on tuberculosis in Lancashire from Oct. 19th to 24th.

The Council announces that Dr. Peter W. Edwards, medical superintendent of Cheshire Joint Sanatorium, near Market Drayton, Salop, has been invited to give a series of short practical courses on modern methods of treatment in tuberculosis of the respiratory system with special reference to collapse therapy. Methods of sanatorium administration will also be demonstrated. No class will exceed four members in number, and no course need last more than three days if more time cannot be spared. Arrangements for board and residence can be made within a convenient distance of the sanatorium.

Details of all these courses may be had from the hon. secretary for post-graduate courses at 8 Highway-court, Beaconsfield, Bucks.

SPECIAL ARTICLES

THE MECHANISM OF MICROFILARIAL PERIODICITY.

BY CLAYTON LANE, M.D. LOND.,
LIEUT.-COLONEL, I.M.S. (RETD.).

NEARLY two years ago, in writing on the difficult question of the mechanism of filarial, that is microfilarial, periodicity, I concluded as follows :—

"If the embryos of *F. bancrofti*, when absent from the skin blood, harbour elsewhere, it is physically unthinkable that they should do so in the overwhelming current of the large blood-vessels; they accumulate in these in numbers from the lymph trunks at or after death only. Nor are they being held back from skin blood by contraction of visceral capillaries, since these can hardly close on one species and open for another circulating in the same blood at the same time. If it were their posture which maintained microfilariæ for many hours daily in deep capillaries, posturing would not be completely discarded in drawn blood. Living microfilariæ have never been found congregated by day in any deep capillaries in numbers corresponding in any way to those demanded by this hypothesis of the mechanism of periodicity; no secret retreat of theirs has been discovered. If they were long-lived, old should be distinguishable from young larvæ by visible changes induced by their activity. Periodicity, then, cannot reasonably be explained as being due to a changed distribution within the blood-vessels of long-lived microfilariæ. Moreover, such a condition holds no biological advantage for the species.

"The known facts have a cumulative weight in favour of the hypothesis that microfilariæ within the body perish rapidly, at least daily, and that periodicity is the result of simultaneous cyclical parturition." [1]

Fresh work reported on filariasis seems to justify a return to the matter; but first it may be stressed that the title of the paper under reference meant exactly what it said; it considered the mechanism, that is the mechanical means, by which microfilarial periodicity in the peripheral blood is produced. It seemed so obvious that the mechanism must be brought into action "by some stimulus at present unknown," and that the stimulus and mechanism were two distinct things which should be dealt with separately, that speculation as to the former was then, and is now, deliberately avoided as not being pertinent to, but as merely complicating, the point at issue. Perhaps it was by reason of such a misunderstanding that "L. E. N." [2] has dismissed filarial periodicity in these words. "Most of the theories are dependent on isolated observations and none of them appear to fit half the known facts." If that is not the case, an enumeration of that particular half of the known facts which cyclical parturition does not mechanically explain is overdue. Another point may be expanded. Sir Patrick Manson definitely attributed microfilarial periodicity to retirement, during the day, of microfilariæ from the skin principally to the large arteries and lungs. P. H. Bahr [3] dealing with a case of the non-periodic form found in just these situations 69 per cent. of embryos made visible by blood films. It can hardly be doubted that Manson would not have suggested "retirement" as an explanation of periodicity had he first had such an experience with the non-periodic form.

TWO PHYSIOLOGICAL FORMS.

Commenting on my paper Dr. P. H. Manson-Bahr [4] expressed the opinion that there was nothing unbiological in the idea that female filariæ have certain cyclical and well-developed periods for emptying the uterus of imprisoned embryos. He further stated his belief that the two physiological forms of *F. bancrofti* had different habitats—the adults of the nocturnal form appearing to live in the main lymphatic trunks in the neighbourhood of the thoracic aorta, maintaining that is a central location; whereas those of the non-periodic form inhabit the "lymphatic glands, epididymis, tunica vaginalis, and perhaps the organs of the body. *It maintains a peripheral distribution.*" Work by F. W. O'Connor, R. Golden, and H. Auchincloss, already noted in THE LANCET,[5] has since lighted up this matter. X rays, they found, could be made to throw shadows of objects in the subcutaneous tissue, and excision of parts which threw the shadows showed that these latter were due to calcified filariæ; moreover, there were in these particular instances as many living shadowless filariæ as calcified shadow-throwing ones. Fifteen subcutaneous shadows were in fact detected in one limb, and the filaria was Porto Rican with nocturnal periodicity. This paper made it clear, first that adult *F. bancrofti* swarms (the word seems fair) in habitats whose search has been greatly neglected, and second that a peripheral distribution turns out to be not specially characteristic of the non-periodic form. Dr. Manson-Bahr, who has recovered 13 live filariæ from a single epitrochlear gland of the size of a pigeon's egg, further notes that from his autopsies he would not place the number of fecund and mature *F. bancrofti* present in a filariated individual at one time as being higher than 20; he calculated on that basis that 328,000 embryos would be circulating at one time for each female filaria harboured; and he noted that, if there is daily death of a cyclical brood of microfilariæ, this prodigious number must be produced daily by each female worm. But since the Porto Rican work has subsequently shown that so many worms may lie in habitats not hitherto systematically investigated, the daily birth-rate of each female must reasonably be taken as greatly below this huge number. Time has, then, shown that these difficulties in accepting cyclical parturition as the cause of filarial periodicity have not the weight they appeared at that time to possess. On the other hand, Dr. Manson-Bahr's letter offered what seems to be very definite new evidence of the short life span of microfilariæ in the body, for he wrote:

"In pure chyluria such few observations as I have made go to show that the filarial embryos are usually dead by the time they appear in the urine; but in hæmatochyluria, where there has been outpouring of the blood into the chylous urine . . . numbers of living microfilariæ appeared in the urine passed at night time."

That single observation suggests (does it not indeed imply?) that urine is not in itself deadly to microfilariæ, and that they are usually dead when they are passed in it because their life span has been exceeded by the time they reach the bladder after a slow progress through blocked lymphatics. What is the usual finding here? The point seems unremarked in print and I have no personal records. Yet it should be readily investigated, and its importance is clear in attempting to discover whether *F. bancrofti* has in the human body a life of only a few hours.

FRESH EVIDENCE OF SIMULTANEOUS CYCLICAL PARTURITION.

The argument put forward in 1929 as to the mechanism of microfilarial periodicity was, it will have been noted, essentially inferential. It consisted in the discussion of the mechanical agents by means of which various writers have attempted to explain periodicity as a redistribution of microfilariæ within

the body, their rejection one by one as being mechanically unreasonable, and the conclusion that the only reasonable explanation left was simultaneous cyclical parturition by female worms; it used that process of exclusion which has so often led medical men to right diagnostic conclusions. There was little direct evidence for cyclical parturition, for Manson's prompt and widely accepted refutation of Meyer's suggestion to this effect laid the matter at rest for half a century.

But since my reopening of the subject two years ago, more direct evidence of cyclical parturition has been sought for and has, I think, been found. F. W. O'Connor [6] has reported the result of examination of a testis and cord handed over to him. It had been removed at 5 P.M. from a Porto Rican who had died apparently from 6 to 12 hours earlier. As has been mentioned, periodicity is here nocturnal. General dilatation and hypertrophy of lymphatics suggested that there had been blockage in the abdomen. In a dilated lymphatic vessel of the parietal layer of the tunica vaginalis lay a fully developed female *F. bancrofti* containing no microfilariæ but having the posterior two-thirds or more of the uterus full of eggs. This was the only worm in which calcification had not at least begun—the only living worm. Microfilariæ were not found within half an inch of this worm nor yet in the upper part of the specimen; but about an inch and a half above the worm there was a zone in which they were present in the walls of the lymphatic vessels and in the connective tissues round them, and indeed were very numerous about the equator of that zone. O'Connor concludes: "Histological studies suggest that the hypothesis of Clayton Lane, to the effect that the phenomenon of filarial periodicity is due to simultaneous cyclical parturition of the gravid female, is correct." Further, Dr. O'Connor has generously put at my disposal his notes on a more recent and as yet unpublished case. A man was shot late at night, the right testis, cord, and hydrocele being removed next day. There were a few microfilariæ in some of the blood-vessels and enormous numbers in the right hydrocele. In the tissues were discovered four fully developed gravid females. "Every stage of development of ova and microfilariæ was found in each of the worms except the final stage . . . . In the four worms the stages of development were identically the same and [the microfilariæ] would therefore, had the patient lived, been born at the same time." There was then, as O'Connor himself points out, evidence pointing towards simultaneous cyclical parturition, and it is sufficiently satisfying to warrant further work on a considerable scale on the same lines with a view to determining whether this is a normal finding in regions in which microfilarial periodicity occurs, and an abnormal one in those in which there is non-periodicity.

DESTRUCTION OF MICROFILARIÆ.

As regards the destruction of microfilariæ there is now this to add. Lymphatic filarial obstruction has hitherto been considered as explicable in terms of damage done to main lymphatic trunks, or to lymphatic glands by adult worms or by larvæ injected by mosquitoes. But the work of O'Connor and his colleagues has shown that adults may live in numbers in the smaller lymphatics of the limbs and on the distal side of all lymphatic nodes; the conditions then are such that, so long as the lymph circulation remains reasonably normal, every microfilaria from these adults must pass through the nodes concerned, and, if the fate of hookworm larvæ be any criterion, the passage will induce considerable activity in them during the process of getting rid of the embryos. Persistent passage of embryos is then likely to be followed by fibrosis and lymphatic obstruction; so that in the destruction of microfilariæ, in the removal of their dead bodies or the dissolved products of them, and in subsequent production of lymphatic obstruction, these nodes are likely to prove to play a part—if all microfilariæ die within 24 hours a very considerable one. Even in this small corner of the filarial problem there is much that will repay intensive study.

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MEDICINE AND THE LAW.

Artificial Cream.

THE Artificial Cream Act of 1929, which began life as the Reconstituted Cream Bill, has shown that hasty and unofficial legislation encounters perils in draftsmanship. Its origin is well known. The dairying industry, hard hit by restrictions on the use of preservatives, found itself fighting two new commercial competitors. One was synthetic cream, derived from vegetable fats and easily distinguishable from raw cream on analysis. The other, called "reconstituted cream" though in fact it had never been cream, was a substance made from butter-fat, milk powder, and water and thus contained elements actually derived from the cow. Agricultural interests in England would have preferred that Parliament should absolutely forbid the use of the word "cream" except in relation to genuine dairy cream. The Artificial Cream Act, however, when it emerged after copious amendment as a valid statute, was not so drastic. The Act defines "cream" and "artificial cream." Its principal provision enacts that nobody shall sell "under a description or designation including the word 'cream' any substance *purporting to be cream* or artificial cream as defined in this Act unless (*a*) the substance is cream as defined in this Act, or (*b*) where the substance is artificial cream as defined in this Act, the word 'cream' is immediately preceded by the word 'artificial.'" Commenting on the words "purporting to be cream," which we have italicised above, the editor of Bell's "Sale of Food and Drugs" observed that the enactment does not apparently apply to articles of food like cream buns which do not "purport to be" cream, though they may be thought to contain it. His observation has been proved correct by the King's Bench Division on the appeal of J. Lyons and Co. from a decision of the Swindon justices.

A county council inspector in Wiltshire bought something labelled "Lyons' Swiss Rolls, Chocolate Sponge (Cream Filled)." There was also a purchase of "Lyons' Cream Sandwich (Vanilla Filled)." The justices thought these articles of food were sold as containing cream; they held that they did not contain cream but a cream-like substance (perfectly wholesome) made of an emulsion of fat from vegetable oil and not derived from cream or milk. The justices convicted but the High Court sent the case back to them for their decision whether the articles sold were sold as "purporting to be" cream. The justices,

at a further hearing, decided in the affirmative and imposed a conviction. The King's Bench Division has now allowed the appeal of the confectioners. As Lord Hewart says, the Act uses the words "purporting to be cream," not "purporting to contain cream." It may be that the statute was meant to cover composite articles of food such as cream sandwiches, but the statute does not say so. If there is a gap, the gap must be filled by the legislature not by the law courts. As it now stands, the Act applies only to cream as a separate commodity. Mr. Justice Avory, concurring, said he could find no evidence to support the justices in their decision that the articles were sold as substances purporting to be cream. Lord Hewart had expressed the opinion earlier that it might be unfortunate, and in some cases entirely misleading, that composite articles should be sold under names including the word "cream." But the judges are obliged to confine themselves to what Parliament actually says; they cannot speculate on what Parliament might have meant to say.

Coroners and Post-mortem Examinations.

There was lately mentioned in these columns an inquest upon a young soldier who died after being run over by a motor-car. A medical witness had given evidence that the consequent injuries to the head were so grave that he deemed it unnecessary to make a full post-mortem examination; the coroner took the witness to task for the omission; death, he suggested, might have been due to heart disease. A converse case has since occurred as the result of an accident to a soldier at Chichester Barracks. It appeared that he had been practising a gymnastic exercise known as the "front dive" over two forms on each side of a bed-cot with a mattress on the further side—an exercise ordinarily performed in the gymnasium under experienced supervision. As the man came down on the mattress, he landed on his head. The depôt medical officer was summoned and the patient was removed to the Royal West Sussex Hospital where X ray examination showed a fracture of the vertebræ. At the inquest the senior house physician, Dr. I. F. W. Edwards, said he was unable to state on oath the cause of death; he did not personally think the injury to the vertebræ was sufficient cause; the deceased had been able to speak, and said: "hit neck in barrack-room last night jumping over forms." The Chichester coroner said he was satisfied that, though the doctors might not agree as to the exact cause of death, the man died from the injuries he received in making the dive; death was entirely accidental; nobody was to blame, and he proposed to return a verdict accordingly. Dr. R. Brooke, honorary senior surgeon at the hospital, protested; he had had charge of the case and was prepared to say that the deceased died from natural causes. Dr. Brooke, giving evidence at his own request, was of opinion that the man had a lesion of the brain which led to dizziness and that the accident was the result of that disease. He raised a point of principle as to the desirability of closer coöperation between coroners and medical practitioners in the matter of post-mortem examinations, and the necessity of ascertaining by all possible medical means the exact cause of death. The coroner replied that he had no hesitation in ordering a post-mortem where he thought it necessary; he had often been asked to make such order where he thought it absolutely unnecessary. He had come to the conclusion that the evidence showed death to be due to the accident; he had to ascertain the cause of death sufficiently for registration purposes, and he had a duty not to throw the rate-payers' money away on post-mortem examination fees.

There, since the coroner has the last word, the matter ended. From the merely legal point of view the coroner was doubtless justified. He had to decide whether or not to issue his order authorising the burial of the body. For this purpose he had sufficient material. There was no doubt of the facts of the accident, no suspicion of foul play, and no element of crime; the relatives, presumably, were satisfied with the investigation. But it was natural that the medical practitioners who had had charge of the case should wish that the fullest medical evidence should be made available and that it should be adequately considered before a judicial decision was made. Dr. Waldo, commenting lately in his court on the qualifications of coroners, stated that the 350 coroners in England and Wales consist of 310 with solely legal qualifications, 30 with solely medical qualifications, and 10 whole-time coroners possessing both kinds of qualification. More coroners, it seems, have a legal than a medical outlook.

Pay-beds at the Miller General Hospital.

The application to the Chancery Division for a scheme providing 50 "pay-beds" at the Miller General Hospital for South-East London, mentioned in THE LANCET of May 2nd (p. 981), has been further adjourned in order that the accounts for the year 1930, which have now been prepared, may be put in evidence.

Dangerous Drugs Act: Substantial Fine.

A doctor was fined £175 in the Manchester City police-court on April 24th on charges of unlawful possession of drugs other than for professional purposes, giving false particulars in prescriptions, and failing to keep a dangerous drugs register. There was no allegation of trafficking, but it was represented that the defendant had abused the privilege conferred upon him as a member of the medical profession. On the ten summonses taken out against him he had made himself liable to fines totalling £2500.

A Question of Ambulance Practice.

In consequence of adverse criticism [1] of the method followed in the London Ambulance Service of dealing with street accident cases, Sir George Hume, on behalf of the London County Council, has conferred with the Commissioner of Police for the metropolis as to the position of the ambulance when the attendants are rendering first-aid to injured persons in the roadway. It was agreed that, when an ambulance reaches a street accident case, the position in which it stops shall be a matter for the ambulance staff to determine, and that any police officers present will give all assistance in their power. Further, it was decided to add the following instruction to the ambulance service:

> When an ambulance reaches a street accident case and the patient is found to be lying in the roadway, the ambulance shall be stopped in the position that is most favourable for dealing with the case. In a busy thoroughfare the ambulance shall, if possible, be placed between the patient and oncoming traffic. When a police officer is present he will be responsible for keeping back bystanders and for the regulation of traffic until the case is removed, and he will aid the ambulance staff in any way he can. All accident ambulances will be furnished with a portable electric red lamp which shall be placed in the roadway, so as to show a red light in the direction of oncoming traffic, during lighting-up time on every occasion when an ambulance is stationary in a public thoroughfare in connexion with a casualty.

[1] See THE LANCET, Feb. 14th, p. 375.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

A NEW SWEEPSTAKES BILL.

LAST week in the Dáil Mr. FitzGerald-Kenney, Minister for Justice, introduced a Bill designed to extend the operations of the Hospital Sweepstakes Act. The Bill proposes to make certain hospitals mentioned by name, which were not eligible for participation in the sweepstakes under the existing Act, eligible in the future. The principal of these are the Royal Victoria Eye and Ear Hospital, Dublin, and St. Mary's Open-air Hospital, Cappagh. The feature of most interest in the Bill, however, is the provision for public (i.e., rate-supported) hospitals to benefit by the sweepstakes. Section 6 lays down that of the sums available for hospitals three-fourths shall be paid to the governing bodies of the promoting hospitals in proportions to be decided on by the Minister. Section 7 provides that the remaining fourth shall be paid to the Minister for Local Government and Public Health, who is to apportion it to the several counties and county boroughs in the Irish Free State in proportion to their respective populations. The share given in this way the Minister is to allocate as he shall think fit to such one or more of the hospitals for the sick poor of such county or county borough maintainable under the enactments relating to the relief of the sick poor. The sum so allocated is to be applied as the Minister shall direct for the improvement of the hospital or for its equipment. The Government appears to have some qualms lest the ratepayers should think themselves relieved of the responsibility of the upkeep of the public hospitals, and the succeeding provisions are intended to exercise some control. The allocation by the Minister of a sum to a particular hospital may be made conditional upon the fulfilment by the local authority of such conditions as he may think fit to impose. Again, it is provided that

> "Money allocated under this Section by the Minister for Local Government and Public Health to a hospital shall be in addition to, and not in substitution for, the moneys required for the ordinary maintenance of such hospital, and shall not be taken into consideration by the local authority by whom such hospital is maintainable by law when determining the amount to be expended by them on the maintenance of such hospital."

It is difficult to see how this provision can be made operative. The legal responsibility for the maintenance and equipment of the hospital rests on the local authority: for what purpose is the Minister to give his grant? Moreover, it is impossible to prevent the members of the local authority taking anything they choose into consideration whatever laws may say. In this connexion it is worth noting that last week the Westmeath Board of Health decided to postpone the consideration of all works involving capital expenditure pending legislation to enable them to benefit from the sweepstakes. The soundest provision in the present Bill is probably the concluding clause, to the effect that the Act shall remain in force for so long as the principal Act continues in force, and no longer.

PROBLEMS OF NATIONAL HEALTH INSURANCE.

A debate of considerable interest to the medical profession lately took place in the Dáil on the vote for the National Health Insurance. Mr. Mulcahy, Minister for Local Government and Public Health, in moving the vote, mentioned that he had succeeded in effecting considerable economies in the cost of the headquarters staff. Consultations were taking place with officials of approved societies and the doctors to see how far the increase in the cost of sickness benefi s was due to laxity in certification or to increase of illness, or to both. In the ensuing discussion charges were brought by various deputies against medical men of carelessness or impropriety in the issue of certificates. Statements were made in particular that certain medical men signed certificates in blank, leaving them to members of their families to issue. Or again it was suggested that certificates were issued without an interview on the date of the certificate between the certifier and the member in whose favour the certificate was issued. Two of the medical deputies who spoke in the debate, Sir James Craig and Dr. T. Hennessy, suggested that if there were grounds for the charge that certificates were wrongly signed or issued by medical practitioners, such practitioners should be reported to the Medical Council. The Minister, in his reply, gave his opinion that the weakness in medical certification probably was not due to the doctors. The difficulty was the hesitancy of the doctors to put a person who had been in receipt of benefit back on the working list, but their certificates for two or three days had a material effect on the total amount of benefit to be paid. The fact, as appeared from figures quoted by Mr. Mulcahy, that the number of cases of cash payment, the number of certificates issued by medical practitioners, and the number of insured persons had increased in almost identical proportions in the past four years does not seem to have elicited any comment. An interesting point made by Mr. Hugh Law, in a criticism of the National Health Insurance system in general, was that it differed from an insurance scheme run on commercial lines in that a man who enjoyed good health all his life obtained no bonus or reduction of premiums.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 2ND, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 192; scarlet fever, 1570; diphtheria, 901; enteric fever, 27; pneumonia, 905; puerperal fever, 42; puerperal pyrexia, 115; cerebro-spinal fever, 61; acute poliomyelitis, 5; encephalitis lethargica, 13; continued fever, 2; dysentery, 3; ophthalmia neonatorum, 112. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on May 5th–6th was as follows:—Small-pox, 257 under treatment, 7 under observation (last week 222 and 6 respectively); scarlet fever, 1226; diphtheria, 1519; enteric fever, 10; measles, 166; whooping-cough, 439; puerperal fever, 33 (plus 19 babies); encephalitis lethargica, 148; "other diseases," 186. At St. Margaret's Hospital there were 21 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 46 (2) from measles, 4 (0) from scarlet fever, 24 (8) from whooping-cough, 22 (1) from diphtheria, 55 (13) from diarrhœa and enteritis under two years, and 74 (10) from influenza. The figures in parentheses are those for London itself.

Sheffield reported the only death from enteric fever. Only 2 deaths from meningococcal meningitis occurred in London. Ten deaths from measles were reported from Liverpool, 7 from Birmingham, 3 each from Leeds and South Shields. Birmingham reported 4 deaths from diphtheria, Liverpool 3. Diarrhœa accounted for 7 deaths in Manchester, 3 in Liverpool. The 64 fatal cases of influenza outside London are scattered over 37 great towns: 6 each were reported from Bradford and Leeds, 5 from Birmingham.

The number of stillbirths notified during the week was 286 (corresponding to a rate of 41 per 1000 births), including 38 in London.

CORRESPONDENCE

ORTHODOXY AND HETERODOXY IN SURGERY.

To the Editor of THE LANCET.

SIR,—I am so accustomed to read the writings of Mr. Ogilvie with profit, and with warm admiration not only for his surgical knowledge and good judgment, but for his mastery of the English language, that I too was surprised to read his statements with regard to the operation of gastro-duodenostomy. Now that another brief unhappy period of monopoly in the treatment of chronic duodenal ulcer by that ancient fetish the "triple carbonates" is nearing its timely end, and surviving cases are returning, disillusioned and disappointed, to the surgeon, it is necessary that the exact rôle, so far as we know it, of various surgical procedures relevant to their treatment should be accurately assessed.

Like Mr. Flint, I most strongly deprecate the operation of duodenectomy, which gives, with greater risk, no greater benefit to patients than do short circuiting operations combined, as they should always be, with destruction or infolding of the ulcer. Of the short-circuiting operations, gastro-duodenostomy may be difficult to perform, indeed it is not always possible. Vomiting may occur after it, and convalescence is not in every case so uneventful as after gastro-jejunostomy. With the limitations of the operation I have dealt fully in my book and need not repeat them here. I think I may sum up my attitude towards the surgical method to be practised in any case of chronic duodenal ulcer by saying that I think first of gastro-duodenostomy, and only when this seems likely to be difficult, impossible, or less desirable do I perform gastro-jejunostomy.

I have never lost a case of gastro-duodenostomy; I have never seen hæmorrhage that gave me the least anxiety; leakage from the suture line has not fallen within my experience; and I have never yet had to perform a secondary operation upon any case of my own for recurrence of ulceration. I hope Mr. Ogilvie will give the operation a further trial. In his most skilful hands it would I am sure prove satisfactory and earn his gratitude.

I am, Sir, yours faithfully,

Portland-place, W., May 11th, 1931. MOYNIHAN.

To the Editor of THE LANCET.

SIR,—I am sorry that my reference to gastro-duodenostomy has brought me into disagreement with Mr. Flint. The main grounds upon which he bases his advocacy of the method, that in his hands it has proved very successful, are unassailable, for Mr. Flint's work is well known and his results beyond question.

The gastro-intestinal junction is guarded by a sphincter under nervous control, whose functions are to prevent chyme leaving the stomach too rapidly and in too coarse a form, and to regulate the acidity of the gastric contents. The biliary and pancreatic secretions are probably directed also by a nervous mechanism, since they occur normally after gastro-jejunostomy and in persons with achlorhydria. When the pylorus is abolished, whether by excision or exclusion, emptying of the stomach becomes a mechanical process. The alkaline juices will be secreted as before, and will mix with the gastric contents at the stoma, wherever situated. It appears therefore that that opening will be most satisfactory which is made most easily, and which lies most naturally after completion. Mr. Flint rightly points out that the technical difficulties which I discussed are chiefly encountered in operations at the pylorus itself; but even in gastro-duodenostomy the parts employed for the stoma are thicker and more vascular than those concerned in posterior gastro-jejunostomy.

The chief difficulty in reaching any certain standpoint in the surgery of ulcer is that men of equal skill and experience hold entirely different views about the type of operation which is most suitable in any class of case, so that their opinions cancel each other out. It is probably fair to say that, apart from Prof. Wilkie, there are few surgeons of comparable standing to Mr. Flint who have as great an enthusiasm for the operation of gastro-duodenostomy.

I am, Sir, yours faithfully,

Harley-street, W., May 11th, 1931. W. H. OGILVIE.

DURACAINE IN SPINAL ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—It is all to the good that the excellent paper of Dr. Bernard Johnson on spinal anæsthesia, which appeared in the current issue of the *British Journal of Anæsthesia*, should be given a wider publicity in your columns. We must all feel grateful to Dr. Howard Jones for calling attention to it, especially as it is so capable of standing the fire of his criticism and coming through the ordeal not only unscathed but with enhanced reputation.

Dr. Johnson injected 100 spinal thecas with "duracaine" a solution lighter than cerebro-spinal fluid, and put the table "head up feet down" 10 degrees so that the lighter solution should rise. In 93 cases it did rise within a few minutes and a high anæsthesia was obtained. In seven cases the onset of anæsthesia was delayed, but eventually occurred. It is not clear whether these patients were in the "head down" position or not; they probably were not, Dr. Howard Jones assumes they were. Let us suppose he is right. He attributes the anæsthesia in these seven cases to the fact that the anæsthetic solution is really heavier than cerebro-spinal fluid and so flowed to the thoracic region as soon as, but not before, they were put in the Trendelenburg position. He says: "In other words the novocain will not go up hill, but waits for the Trendelenburg position, for this mixture becomes a hyperbaric [heavier] solution when diluted with cerebro-spinal fluid." How does he account for the high anæsthesia in the 93 cases when it occurred in the head-up position? Duracaine is a very remarkable liquid but it is not both lighter and heavier than cerebro-spinal fluid at the same time. It *is* lighter than cerebro-spinal fluid outside the body and 93 times out of a hundred in this series it acted as though it were lighter inside the body. It is therefore reasonable to suppose that it *is* lighter inside the body.

Secondly, the case referred to by Dr. Howard Jones of the 6-year-old child who received 200 mg. of novocain (as duracaine) is an excellent example of the safeguarding action of gliadin, for 150 mg. of novocain is considered by many authorities—e.g., Prof. Forgue of Paris, Prof. Sebrechts of Bruges—as a super maximum dose for an adult. Yet this child of six received 200 mg. How is such a thing possible? The answer is that gliadin made it so. Gliadin limits the diffusion of novocain in the cerebro-spinal fluid and delays its absorption into the blood. After telling

us that the respiratory centre can be paralysed by novocain, which is well known, Dr. Howard Jones says the centre was "badly affected," presumably with novocain. There is no evidence to that effect. All the evidence points to a very different conclusion. Here is the most relevant part of it. "Upon tilting the table more head downwards the patient's condition was *rapidly restored* to normal." What possible effect could tilting the table more head downwards have on a respiratory centre badly affected by novocain? Just none. The explanation is quite otherwise. Owing to the fall of blood pressure the venous return to the heart was inadequate, the heart was therefore failing and was not supplying the respiratory centre with blood. The centre was suffering from anæmia not novocain. An efficient Trendelenburg position immediately gave the heart its desire—namely, blood. The heart responded and gave the respiratory centre blood; the respiratory centre responded and gave the heart oxygenated blood, and the "patient's condition was rapidly restored to normal."

Dr. Johnson in the face of an alarming situation made a correct diagnosis and his treatment was as effective as his diagnosis had been prompt. Dr. Howard Jones in the quietness of his study misinterprets the situation.

I am, Sir, yours faithfully,

Manchester, May 10th, 1931. E. FALKNER HILL.

SYPHILIS AND YAWS.

To the Editor of THE LANCET.

"The faintest streak that on a petal lies
May speak instruction to initiate eyes."
(Bryant—"The Mystery of Flowers.")

SIR,—Captain Butler of the U.S. Navy heads his letter in THE LANCET for April 25th with a quotation from William Cullen Bryant. I have followed his example; and I imply by my quotation, of course, that if Captain Butler has seen the streak on the petals of syphilis and yaws, his eye is not sufficiently initiate to appreciate the instruction available.

His communication amounts to this—that in his belief syphilis did not originate in America, and also that syphilis and yaws are one and the same disease. I am tempted to indicate briefly certain things which show that syphilis has not an European ancestry, and also that it and yaws are separate and distinct disease-entities.

Although Captain Butler says that "the ancient European ancestry of syphilis may be shown in a dozen ways, direct and indirect, and yet we find in current literature physicians subscribing to the moth-eaten fallacy that syphilis is of New World origin," nevertheless, he fails to mention one single way. If syphilis existed in the Old World prior to 1493, then all he has to do is to produce one reference to it before that date. He has only to cite one case of congenital syphilis, one case of tabes, one case of paresis, or one pre-Columbian syphilitic bone. But that, of course, he is quite unable to do.

Before the return of Columbus, all is silent upon the subject of syphilis. But shortly thereafter the new disease under divers names resounds throughout Europe, causing consternation and dismay. It behaves as a new disease, spreads as a new disease, and is recognised by contemporary physicians as a new disease. Nay more, it is immediately shown to have been introduced by the returned crews of Columbus, some of the men being infected—including the pilot, Pinzon—when they arrived in Palos on that fateful Ides of March. Las Casas and Oviedo, among others who visited the New World soon after, showed that the disease had been prevalent among the natives of America from time immemorial.

I am writing with a full knowledge of the joint paper by Captain Butler and Lieut. Harnandez in the *Southern Medical Journal* (vol. xxii., December, 1929); and here I would like to correct them upon one point. They state that there were no Spanish troops in the French army of Charles VIII. which carried out the invasion of the Kingdom of Naples. This is not correct. If they will read the first book of Ruy Diaz de Isla, they will find the following words: "And afterwards in the following year, 1494, the Most Christian King Charles of France, who then was reigning, having gathered a great army, passed into Italy. And at the time he entered the country with his host, many Spaniards infected with the disease were in it. . . ."

Of the duality of syphilis and yaws there is ample evidence. Of their unity, there is none. It is true that morphologically the parasite of yaws resembles that of syphilis; but then morphology counts for next to nothing. An ordinary brick which has been gilded may be morphologically indistinguishable from an ingot of gold. It is their different *behaviour* which matters. So with the *Treponema pallidum* and the *Treponema pertenue*. One behaves in a different way to the other. Yaws does not exist in a congenital form—i.e., the child does not acquire the infection in utero. In contrast with syphilis the primary lesion of yaws is seldom genital, and it is usually preceded by marked constitutional symptoms. Endarteritis is absent in yaws whereas it is characteristic of syphilis. In yaws there is little or no adenitis, the type of exanthem is single, there is great itching, alopecia is absent, and so likewise is iritis. From a yaws-infected mother no child is born who develops notched teeth, interstitial keratitis, eighth nerve deafness, oral fissures, or saddle nose. Yaws and syphilis often coexist in the same person. The one disease does not confer immunity against the other. Yaws does not give rise to tabes, paresis, or aortic aneurysm.

I have just read the letter of Dr. Stannus in THE LANCET for May 2nd, and I am inclined to differ from him in what he says with regard to sibbens—namely, that it is a "non-venereal epidemic syphilis." I rather regard it as being an European type of yaws. With respect to the remainder of his letter I agree.

In conclusion, I would point out that it would not be valid for Captain Butler to argue the European antiquity of syphilis by showing that yaws—frambœsia, sibbens—was known in the Old World before the discovery of America, without first proving that yaws *is* syphilis. He must avoid the fallacy of *petitio principii*.

I am, Sir, yours faithfully,

E. TYTLER BURKE.

Municipal Clinic, Regent-road, Salford, May 8th, 1931.

SWEEPSTAKES AND VOLUNTARY HOSPITALS.

To the Editor of THE LANCET.

SIR,—The treasurer of St. Thomas's Hospital is very sceptical of the benefit to be derived from an English version of the Irish hospital sweepstake. But supposing the sweepstake were promoted by either the State or the local authority, in relief of the taxes and rates—what then? Germany can give us reliable data. Could we not pay off the "dole" debt, finance a specialist and clinic organisation for

the National Health Insurance scheme, and perhaps get the income-tax in more quickly, if there were a gambling element in the matter? If the contribution to the National Health Insurance or income-tax carried a ticket per £1 for some lottery—the winner need not be drawn by a horse!—surely we should pay up far more readily, and have something of considerable psychological value in the way of interest. We should have something of a counter to the very disagreeable feelings aroused by the payment, or even the mention, of a compulsory tax, to such of us as still have a feeling that our money is our own, and that, being adult, we should be allowed to spend it in our own way, provided this is not directly harmful to others.

I am, Sir, yours faithfully,

H. G. P. CASTELLAIN, M.D. Cantab.

Moseley, Birmingham, May 8th, 1931.

TOXIC EFFECTS OF LUMINAL.

To the Editor of THE LANCET.

SIR,—I would like to add one important symptom of luminal poisoning to those described by Dr. R. W. L. Pearson and Dr. H. S. Pemberton in your issue of March 21st. In one of the cases I have seen, the acute symptoms appeared as a result of taking about a drachm of luminal by mistake. The patient was almost unconscious and had suppression of urine for more than 48 hours. Cupping in the kidney region was done but there was no response. On the third day the toxæmia had increased and the operation of capsulotomy of the kidneys was suggested. But before any operative measures of doubtful value were undertaken it was decided to give medical treatment a full chance. As a last resource it was decided to give 2 per cent. sodium sulphate intravenously. Accordingly, about a pint of the sterilised solution was injected and to the great relief of the patient and the attending staff a few ounces of urine were obtained on catheterisation about eight hours later. The urine continued to be secreted slowly and there was no necessity for repeating the intravenous injection. The patient made an uneventful recovery.

I am, Sir, yours faithfully,

P. L. DESHMUKH, M.B., B.S. Bombay,
Hon. Clinical Pathologist,
April 21st, 1931. B.J. Medical School, Poona, India.

PANEL AND CONTRACT PRACTICE

Diagnostic Aid in Insurance Practice.

ALTHOUGH ample facilities exist for the provision of drugs for insured patients none has yet been made for laboratory diagnosis. It is true that when the service was established the laboratory did not occupy its present position in diagnostic medicine, while the bottle of medicine held almost undisputed sway—a domination which has been maintained, possibly even strengthened, by arrangements made under the Insurance Acts. "Treatment without diagnosis" has been suggested as a suitable slogan. Attempts to induce the Ministry of Health to include within insurance benefit some facilities for diagnosis have hitherto met with no success. A step forward has been brought about by the action of the British Medical Association in promulgating a schedule of fees for the performance of various laboratory procedures in general use in clinical medicine, and in arranging with a number of pathologists attached to general hospitals and clinical laboratories to undertake examinations for insured persons and their dependants at the rates therein laid down. This schedule, together with the names of the institutions undertaking the work, has now been circulated to panel committees. No funds are available for the working of the scheme, and the fees for the examinations must be a charge either upon the patient or upon the medical man asking for them. This fact makes it probable that the volume of work done under the scheme will not be great.

The schedule of fees was drawn up by the Consulting Pathologists' Group of the B.M.A., with the assistance of the council of the Association of Clinical Pathologists, and represents the first real attempt in this country to make the fees for this class of work approximate to the actual cost. It is the result of much actuarial work based upon the work done and the costs of maintenance of a number of laboratories throughout the country. Investigation showed that much of the pathological work at present done represents a charge on the institution performing it, a fact which has escaped notice inasmuch as most of these institutions depend for their maintenance not upon the fees received but upon the rates or charitable or educational funds. No doubt the vaccine has to some extent served to redress the balance. Insurance committees have been known to pay as much as ten guineas for an autogenous vaccine for a patient under their charge, although in the opinion of those who drew up the schedule two guineas represents a reasonable flat rate for all preparations of this kind. In view of the highly specialised nature of the work the scheme is framed to utilise the laboratories attached to general hospitals, an exception being made for certain laboratories engaged in clinical pathological work.

Hospitals, Drugs, and Panel Patients.

We learn from the *Manchester Guardian* that the board of management of the Eccles and Patricroft Hospital will persist in their effort to have the hospital placed on the list of dispensing chemists under the National Health Insurance Acts. The object is to make the hospital eligible for payment on account of drugs and dressings supplied to insured patients. The hospital was informed by the insurance committee that no application could be considered unless it complied with the terms of the Pharmacy and N.H.I. Acts. The hospital has become incorporated and is now assured by counsel that the legal provisions of these Acts have been fully complied with by incorporation. During the last 20 years the hospital, it is stated, has supplied over £10,000 worth of drugs and dressings to panel patients without recompense, and while they do not claim to participate in the drugs fund the board of management do consider they have a claim on insurance funds to cover the cost of drugs and dressings given to insured persons while in hospital.

QUEEN CHARLOTTE'S HOSPITAL.—At the annual meeting recently Sir Samuel Scott, the chairman, said that if the whole hospital could be moved to the new site in Goldhawk-road, Hammersmith, it could be made a centre of post-graduate teaching in obstetrical work and for the training of students, but to do that £200,000 was required. Meanwhile last year's expenditure exceeded the income by £6600.

OBITUARY

HENRY BRIGHT WEIR, M.B. Camb.

Dr. H. B. Weir, whose death occurred on May 4th, was the younger son of the late Dr. Archibald Weir, of Malvern. Born in 1880 he was educated at Harrow, where he played for the football eleven and was its acting captain in 1898. He was also a great runner and won many cups at the school sports, chiefly for the mile and half mile. In 1899 he entered Trinity College, Cambridge, taking honours in science, proceeding to St. Thomas's Hospital where he took the Conjoint diploma in 1907, and held a resident appointment. In 1910 he took the M.B., B.Chir. Camb., was appointed Louis Jenner research scholar in pathology for 1911 and 1912, and became assistant director of the Louis Jenner clinical laboratories and demonstrator of clinical pathology. When the war came he obtained a commission in the R.A.M.C., and became acting director of the laboratories, when much of the teaching in addition to the pathological work fell on his shoulders. To these he devoted his entire time and energy without stint, carrying on alone the work usually shared by several, and with conspicuous success. The war over, he was asked to make room for others, and thus severed a connexion of over 15 years with the hospital he had served so well.

DR. WEIR.

[Photograph by Jas. Baron.

In 1918 Dr. Weir was appointed assistant lecturer in pathology at Charing Cross Hospital, and from there he went, in 1920, as pathologist to the National Hospital for Diseases of the Heart in Westmoreland-street, where he was working less than two hours before his death. At this hospital he became interested in causes of sudden death. He published, with others, a series of cases of death from ruptured heart, due to joy, grief, and many other causes, which he thought might be more common than was generally believed. The museum of this hospital is now, thanks to his efforts, one of the finest of this type in the country. During this period he was increasingly engaged in the scientific application of his branch of medicine to medico-legal needs. For many years he was one of the pathologists attached to the Coroner's Court for Central London. Dr. Ingleby Oddie tells us that he was a most painstaking and careful pathologist, sound and reliable in his work, an excellent witness, and a man of great personal charm. Dr. Oddie adds: He never expressed an opinion without clear grounds to support it, and was one of those quiet, modest people whose work was always characterised by signal efficiency.

One of his younger associates writes: "H. B. Weir or Goyle, as his intimates were privileged to call him, will be really missed by those who had the good fortune to count him among their friends. He was not easy to get to know, but once admitted to his confidence one had a very true friend. Having known him well for 15 years the characteristic which stands out strongly is his reliability; we could always count on his help or advice and feel certain it was the best we could get. 'Ask Goyle' was almost a bye-word with some of us. His kindness was proverbial; during the war he used to ask a few of us to dinner and then take us over to the laboratory and coach us in pathology, not officially but simply to help. Lenient where the faults of others were concerned, he was if anything over-conscious of what he considered his own shortcomings. He was a brave man; knowing so much of heart disease and fully aware of his own condition he was never heard to complain or give way to depression, but faced it cheerfully and carried on. He died at his home, as he would have wished, at the end of a day's work."

In 1926 Dr. Weir joined the Order of Crusaders whose object appealed strongly to him, being that of keeping alive the war-time spirit of "helping lame dogs over stiles." He was Master of his Conclave for this year and Member of the Grand Conclave. He leaves a widow and two young children.

JESSIE LAMB, M.B. Lond.

Dr. Jessie Lamb, who died on May 1st at Bath, after a serious operation, had been associated for many years with St. Catherine's Hospital, at Amritsar, India. She was the youngest child of the late Canon B. Lamb, and was born at Wheldrake, near York, in 1877. She was educated at the Leeds High School, at Westfield College, and at the London School of Medicine for Women, taking her medical degrees in 1903. Before going to India in 1906 she held resident appointments at Bermondsey Medical Mission and at the Elizabeth Garrett Anderson Hospital. For four years she worked under the Church of England Zenana Missionary Society at St. Mary's Hospital, Tarn Taran, in the Punjab, and in 1910 she went to Amritsar. The St. Catherine's Hospital there had been founded 30 years earlier by Miss S. S. Hewlett as a centre for training Indian midwives; to-day it has 100 beds with an annual turnover of 1700 in-patients and 15,000 out-patients. There are several Indian doctors and nurses on the staff, and when during recent troubles in India the English staff, as a precautionary measure, left the city and slept in cantonments, Dr. Lamb remarked: "It was the proudest moment of my life when I walked out of my hospital knowing that my Indian fellow workers would carry on the work just as efficiently as if we were still there." Dr. Lamb's service to India was recognised in 1920 by the bestowal of the Kaisar-i-Hind silver medal. Two of her sisters went out as missionaries under the same society; another sister who trained as a nurse at the Sussex County Hospital went out to Amritsar in 1911 and is still there.

THE LATE SIR BYROM BRAMWELL.

WE have received from Prof. G. Lovell Gulland the following eloquent and just appreciation of Sir Byrom Bramwell, his chief and colleague :—

"The death of Sir Byrom Bramwell removes a great figure and a great name. Not every physician is a hero to his assistant physician, but during our long partnership in that relation I admired him more and more, and have always retained my veneration for him. When he was promoted to the physicianship in 1892 to take charge of the women students, who were then first admitted to the Infirmary, I was appointed assistant physician and assigned to him. He was full of the delight of having wards, and as he was not yet overwhelmed with practice, he spent long hours in investigating his cases, often with myself as a fascinated helper. From him I learnt the invaluable lesson of clinical thoroughness, and also of pathological thoroughness, for we used to go together to do post-mortem examinations on private cases, and on cases which had been in his wards, and which he had followed up, often for years. As time and his great reputation brought an increase of practice the hours that he was able to spend in the wards became shorter, but he regularly supplemented them by constant study of case-records at home. This made him more dependent on his resident physicians, but he was able to command the services of the best graduates, and was singularly fortunate in his selections. To them, as to me, his vast knowledge of clinical medicine was a revelation, as it was also to outsiders. An eminent London physician once said to him in my presence: 'Every time I hear of you, Bramwell, it is as an authority on some fresh subject.' While he was best known as a neurologist, his work on the heart, on anæmia, and diseases of the ductless glands and other subjects was in the first rank in its day. His monumental 'Atlas of Clinical Medicine' has never been equalled, but his 'Clinical Studies' were more widely read than any other of his publications and more appreciated by the profession at large. They were the outcome of his famous 'Wednesday Cliniques,' which were held in the 'Duck Pond' below Ward 28, and which were always crowded to the doors and windows; so much so, indeed, that some of his colleagues enjoyed a happy respite from teaching on that day. I never knew him as a systematic teacher, but as a clinical teacher he was superlatively good, clear, concise, dogmatic when it was possible to be so, cautious when it was not, bringing to the illustration and elucidation of a doubtful case the whole of his vast experience. He *was* the Edinburgh method of teaching at its best.

"We thought that his opportunity and that of the school had come, when at the death of Grainger Stewart the chair of Medicine became vacant. Bramwell presented a marvellous collection of testimonials from every part of the world, a wonderful evidence of his fame and reputation, but to our—and his—bitter disappointment he was not elected. In spite of this he carried on his work as keenly as ever. When his term as physician came to an end his colleagues and friends entertained him to dinner in the College of Physicians, an occasion of happy memory, and an honour which has not been extended to any other clinician. After his retirement from the Infirmary he long continued to be active in practice, but made few public appearances. How much this was to be regretted was evident when his colleagues chose him as President of the Association of Physicians on the visit of that body to Edinburgh in 1923. His conduct of the meeting was admirable, and his summing up of some of the discussions was in his old masterly style. Only a year or two ago, as one of the senior members of the consulting staff of the Infirmary, he presented to Mr. W. S. Caw, on behalf of the whole staff, a memento on his retirement from the post of Secretary and Treasurer to the institution. His speech was full of grace and dignity, with a touch of pathos.

"But his fame as a teacher and investigator were often forgotten by his friends in their love of the man himself. He was always approachable, always interested more in your doings than in his own, glad to give advice if it was asked, but never thrusting it upon you, kindly, even-tempered, but not sparing a rebuke in season if he thought it would do good. He was a keen sportsman. By the time I knew him well he had given up the more active sports, and settled down to fishing. I remember well one hot August afternoon by the Tummel when I came upon him in his shirt-sleeves wielding a big two-handed rod and getting fish when I couldn't raise them. Many a fishing story I have heard from him in his work-room in Drumsheugh Gardens, when with the inevitable cheroot in full blast he would forget work and worry in the tide of memory. He was the best of company. He had been a keen whist-player, and one day expressed a desire to learn bridge. Haultain, Norman Walker, and I taught him the game one evening at my house, and when we separated about 3 A.M. he was the winner. To the end he was keenly interested in the school and in medicine. About a year ago he asked some of his old residents to dine with him, and aged though he was, he made us all talk about our doings and was as interested and sympathetic as of old.

"All over the world his students will regret him and feel that they have lost not only a teacher and a source of inspiration, but a friend. His memory will endure long after they, too, have departed."

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. J. M. Horan is placed on the Retd. List.

A. F. Davy to be Surg. Lt.

Surg. Lt.-Comdr. J. M. M. Wright to *Hood*. Surg. Lt.-Comdrs. (D.) D. H. Le Marchant to *Excellent*; F. R. P. Williams to *Malabar*, for R.N. Hospital, Bermuda; A. W. Wallace to *Greenwich*; and D. Paterson to *Pembroke*, for R.N. Barracks, Chatham. Surg. Lts. J. G. Ollerenshaw to *Vernon* and L. P. Spero to *President*, for two months' post-graduate course. Surg. Lt. (D.) H. A. Ginn to *Vivid*, for R.N. Barracks, Devonport.

ROYAL ARMY MEDICAL CORPS.

Lt. (on prob.) O. Ive resigns his commn.

ARMY RESERVE OF OFFICERS.

Lt.-Col. G. K. Maurice (Maj., ret. pay) to be Lt.-Col.

Capt. A. J. R. O'Brien, from the Gen. List, Res. of Off., to be Capt., retaining his present seniority.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Capt. E. Holmes from Active List to be Capt.

INDIAN MEDICAL SERVICE.

Capts. to be Majs.: M. K. Kelavkar and H. M. Strickland.

To be Capt. (on prob.): E. P. Carroll.

To be Lts. (on prob.): B. Temple-Raston, G. K. Graham, A. W. West, Mazhar Hussain Shah, M. K. Bryce, J. Guthrie, J. E. S. MacDonald (since deceased), H. B. Macevoy, M. M. Mansfield, J. L. O'Neill, and W. J. Stewart.

ROYAL AIR FORCE.

Flight Lt. P. J. Nyhan is transferred to the Reserve, Class D (ii), and is employed with the Regular Air Force for one year.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

PROPRIETARY MEDICINES BILL.

ON Monday, May 11th, in the House of Commons Dr. HASTINGS presented a Bill to regulate the manufacture, sale, and advertisement of certain medicines and surgical appliances; and for purposes connected therewith. A forecast of its provisions appeared in a leading article in our issue of March 28th (p. 707). The Proprietary Medicines Bill seeks to make it unlawful for any person to manufacture or prepare for sale any proprietary medicine, or any proprietary surgical appliance, unless he is duly registered under the Act as the owner of the medicine or appliance, or his authorised agent. The medicine or appliance must also be registered and particulars must be forwarded to the Registrar (who will be appointed by the Minister of Health) showing the ingredients used in the preparation of the medicine. These ingredients must be specified in the Register. The Registrar must not disclose any information concerning the formulæ to any person except the authorised owner or agent. The Bill makes it an offence to advertise any proprietary medicine or appliance for the prevention, cure, or relief of a number of diseases specified in a schedule to the Bill, including cancer, consumption, diabetes, epilepsy, paralysis, and Bright's disease. Dr. Hastings, the introducer of the measure, has the backing of medical and lay members of Parliament belonging to all the three parties. The names on the back of the Bill, in addition to that of Dr. Hastings, include Lieut.-Colonel Fremantle (Unionist), Dr. Morris Jones (Liberal), and Dr. Salter (Labour).

HOUSE OF LORDS.

WEDNESDAY, MAY 6TH.

THE TWENTY-FOUR HOUR TIME-TABLE.

Lord NEWTON moved: "That in accordance with the recommendations of the Home Office Committee appointed in 1919 to report upon the advisability of adopting for official and other purposes the 24-hour method of expressing time, the Ministry of Transport should invite the railway companies to adopt this system from a certain date, and that it should be simultaneously introduced into the Post Office." He said that the Government in 1919 appointed a Committee, which was presided over by Lord Stonehaven. They examined a large number of witnesses of all kinds, scientific, commercial, persons interested in shipping, military, and naval authorities, and railway authorities. They reported that the 24-hour system had been found completely satisfactory wherever it had been tried, and that it caused no inconvenience because the old and the new systems were quite easily worked together. They recommended that the railways should be invited to put the new system into effect and that at the same time the Post Office should give the railways the necessary lead by introducing it into their services. No legislation was required and no public expenditure, beyond the alteration of date stamps and hours on pillar boxes by the Post Office, would be involved. In view of these recommendations it seemed surprising that the change had not been made. The recommendations of the Stonehaven Committee had been completely ignored. The request he was putting forward was of a very modest character. It was insignificant compared with the much greater reform of summer time, the greatest boon, perhaps, that this generation had ever experienced. If the 24-hour system were adopted it would remove many inconveniences.

Lord STONEHAVEN said he was in favour of the change in 1919 when he presided over the Committee which examined this question, and nothing that had occurred since had led him to think that the Committee were wrong in submitting that the 24-hour system would be an advantage and an improvement.

Lord BANBURY said he hoped the Government would adhere to their former decision. He could see no object in changing what they had been accustomed to all their lives, nor in asking the railway companies to spend money in altering their time-tables, clocks, and various other things.

Lord LAMINGTON said our present system of time-keeping was distinctly artificial and the reasons given for a change to a simpler system were overwhelming. The change was bound to come. In these days when intercommunication from one part of the world to another was so rapidly developing it was impossible to conceive that the various air services could work on any other system than the 24-hour table.

Lord MONKSWELL said that for a long time something simple and convenient like the 24-hour system had been a crying necessity. He hoped that the Post Office and the railways would abandon their attitude of opposition and would accept this reasonable reform with a good grace.

Lord TRENCHARD said the 24-hour system had been found necessary in connexion with flying, and he hoped it would be adopted universally.

THE WISHES OF THE PEOPLE.

Lord MOYNIHAN said he hoped that the Government would not listen to the request of Lord Newton. No greater mistake could be made than to suppose that the people of this country desired to live under good laws. They desired only to live under laws which they made themselves, and the law which divided the day into two periods of 12 hours seemed to him to be consonant with the wishes of the people. He (Lord Moynihan) might make the claim—he hoped it was not an arrogant one—that he had travelled more upon the railways than any other noble lord present. He had never confused A.M. with P.M., nor did he think it the least likely that he would ever make so grave a mistake. If they had a 24-hour day they would find great difficulty even with so large a clock as that attached to Big Ben in distinguishing exactly to what hour the hour hand pointed. It was true that very high, perhaps the highest, scientific authority in this country, the Astronomer Royal, had twice forcibly expressed himself in agreement with Lord Newton. He (Lord Moynihan) had every consideration for the opinion of his old friend Sir Frank Dyson, but he would point out that the language of the laboratory was not the language of the everyday common room. For example, they spoke of the daisy and the primrose, not of the *ranunculus*, which was qualified by some hideous epithet or another. It would be a pity if they allowed the language of science to step in and replace the everyday and much more attractive words that were in use. He did not know whether their lordships had recently been so happy as to consult their physicians. If they had they would find on the prescriptions provided, in the top left-hand corner, some sort of hieroglyph which looked as though a fly had dropped into the ink bottle, had managed to escape and deposit itself on the top left-hand corner of the prescription paper, and there had suffered many seizures of epilepsy. That hieroglyph was really an invocation to the god Jupiter that he would bless the various ingredients of the prescription which were written in Latin. He would remind their lordships, if they were not familiar with the fact, that the names of drugs were written in Latin in order that patients might not in the least understand what drugs they were taking, and that psychotherapy might be added to the benefit they received from the drugs. But there was really a very profound physiological reason why the day should be divided into two parts. All nature consisted of cycles. There

was death and resurrection; there was ascent and decline; there was adolescence and the climacteric. St. Paul expressed a profound truth when he said, "I die daily." In all these matters there was a sort of rhythm in life. Whether it had to do with pulse beats, or the regularity of the heart, or the frequency of respiration, or what not, he could not say, but there was a feeling that there was a division of the day into two parts, one of increasing activity as the morning went on, reaching an altitude, and from then suffering a decline when the period of repose came on. The division of the day into two parts was not only in consonance with the wishes of the people of this country, but was a recognition of a profound biological truth that there were two periods in each 24-hour day, a period of what should be activity, and a period of what should be repose. He thought it was the common sense of the people of this country as against the lack of common sense in the people of other countries which made them wish to retain the double cycle in the 24-hour day. They were told that Britain was in isolation so far as other nations were concerned. He hoped it was. He hoped that not for the last time they would see the stubborn infrangible British common sense opposed to the freakishness and vapourishness of other nations on the Continent.

Viscount CHURCHILL said that if the Government, the Post Office, and the country generally adopted the 24-hour system the railways would naturally fall into line. But until that was a *fait accompli* they naturally were not in a hurry to spend money and alter their time-tables, preferring to wait until the suggestion if it was adopted was in universal use.

USE IN MORE ADVANCED GOVERNMENT DEPARTMENTS.

Lord MARLEY (Under-Secretary for War), replying for the Government, said the discussion had produced a number of interesting speeches including the particularly brilliant speech of Lord Moynihan, which must have delighted their lordships. It was true that the more advanced Government Departments did use the 24-hour system. The War Office had used it for many years, the Air Force had come into line, and in civil aviation the system was bound to be universal. It was doubtful whether there was any real public demand for the change. Nevertheless, there had been a widespread expression of opinion in their lordships' House that some examination of this question ought to take place, and that the Government should in some way assist in the consideration of the problem. He was authorised to say on behalf of the Government that careful and sympathetic consideration would be given by them to the whole question raised by Lord Newton.

Lord NEWTON said that on the understanding that he was at liberty to question the Government again on the subject he would not insist on a division being taken that day. He would withdraw his motion.

The motion was by leave withdrawn.

HOUSE OF COMMONS.

WEDNESDAY, MAY 6TH.

Voluntary Milk Clubs in Schools.

Mr. R. S. YOUNG asked the President of the Board of Education whether he was taking any action to encourage education authorities to organise voluntary milk clubs in the schools of their respective areas.—Mr. MORGAN JONES replied: Yes, Sir. My Department are actively coöperating with the National Milk Publicity Council, and every opportunity is taken of bringing the Council's scheme to the attention of local education authorities and teachers.

Mr. YOUNG: Is the right hon. gentleman aware that only 10 per cent. of the children in the country are now taking advantage of this excellent scheme, and will he therefore do his utmost to encourage this development throughout the country?

Mr. MORGAN JONES: I can assure my hon. friend that every encouragement is being given. As a matter of fact the National Milk Publicity Council say that this year they provided milk for 600,000 children as compared with 350,000 last year.

The Census.

Mr. FREEMAN asked the Minister of Health when the information obtained at the recent Census would be available for the public.—Miss SUSAN LAWRENCE replied: It is expected that the first figures obtainable from the recent Census will be made available to the public in the form of the preliminary report within approximately two months from the present date.

Regional Town Planning.

Sir KINGSLEY WOOD asked the Minister of Health whether the committee which was examining the reports of the regional planning committees had yet reported.—Mr. GREENWOOD replied: An interim report has been made by the committee and is now being considered.

THURSDAY, MAY 7TH.

Silicosis.

Mr. RENNIE SMITH asked the Home Secretary, arising out of the recommendations of the International Silicosis Conference of 1930, that every effort should be made to emphasise the necessity for a whole series of provisions relating to hygiene, including methods for reducing production and diffusion of dust, maintaining the purity of the air in the mines, and the provision of suitable means for ensuring personal hygiene, and what steps he proposed to take to ensure that these recommendations were put into effect.—Mr. CLYNES replied: The particular recommendation mentioned in the question relates only to mines and does not, therefore, directly affect my Department. As regards, however, the protection of factory workers against exposure to dust, this question has, for many years past, received the greatest possible attention from the Home Office, and has been dealt with not only by general provisions in the Factory Acts, but also by special provisions included in various codes of regulations for industries in which dangerous dusts are produced. The need of strengthening and extending these provisions is constantly under review, and my hon. friend may be assured that every possible precaution will continue to be taken. I may add that the preventive measures recommended by the Conference were, I understand, based on the measures actually adopted and applied in this country.

Mr. RENNIE SMITH asked the Home Secretary what steps had been taken to carry out the recommendations of the International Silicosis Conference of 1930 that an international classification of the stages of silicosis and their radiological diagnosis be established and that research be undertaken on an international basis into the causation of silicosis and other diseases due to dust.—Mr. CLYNES replied: The classification of silicosis mentioned in the report of the Conference was, I understand, unanimously adopted by the Conference, and I am advised that, having regard to the representative character of the Conference, it may be regarded as generally accepted. As regards the other recommendations referred to, the intention of the Conference was that each country should institute researches on the lines suggested and should communicate the results to the International Labour Office. So far as this country is concerned, the matter has been under consideration by the Committee appointed by the Medical Research Council to investigate silicosis and other forms of pulmonary disease, and I am informed that schemes of research drawn up by this Committee have now been approved and are being put in operation.

Mr. TRAIN asked the Home Secretary (1) what sums had been contributed by Scottish quarry masters to the Workmen's Compensation (Silicosis) Fund; and what claims, if any, had been made on the fund from quarrymen in Scotland; and (2) whether he was aware that after a medical examination by the medical board appointed under the Sandstone Industry Silicosis Scheme, 1929, no case of silicosis had been found among the quarry workers in Scotland; and whether he had taken, or proposed to take, any steps to implement his promise to the Scottish quarry masters that, following on the medical examination, the question of their liability for levies under the scheme would be reviewed.—Mr. CLYNES replied: The levies paid by the Scotch quarry masters to the Sandstone Silicosis Fund between April 1st, 1929, and March 31st last, amounted to £3931. Claims have been made in Scotland on the fund in one case of death, where the workman left dependants, and in two cases of partial incapacity. The promise given to review the rates of levy on completion of the first periodic medical examinations will be duly observed, but the examinations will not be completed for some time yet.

Vagrants' Accommodation in Leicestershire.

Mr. WINTERTON asked the Minister of Health whether he was aware of the conditions at Loughborough poor-law institution where men on tramp were required to sleep in

hammocks instead of proper beds; and whether he would intimate to the poor-law authorities in Leicestershire that they must comply with the regulations of the Ministry of Health in that and other respects.—Mr. GREENWOOD replied: I am aware that at present the cubicles and one of the men's dormitories of the Loughborough casual wards are supplied only with hammocks or mattresses. In the other men's dormitory and in the women's ward there are proper bedsteads. I have called the attention of the Leicester County Council and the Leicester and Rutland Joint Vagrancy Committee to the requirements of the new Public Assistance (Casual Poor) Order, 1931, in this matter, and I am glad to say that the appropriate subcommittee have now recommended the supply of bedsteads throughout the wards.

Housing Survey in Islington.

Mr. R. S. YOUNG asked the Minister of Health if the housing survey undertaken by the medical officer of health for Islington, on behalf of the joint committee, had yet commenced; what were the areas to be surveyed; and by what date was the report to be presented.—Mr. GREENWOOD replied: The reply to the first part of the question is in the affirmative. The areas to be surveyed are areas selected by the joint committee to which may hon. friend refers and, though no date can be fixed, it is hoped the report of the survey will be presented in the near future.

MONDAY, MAY 11TH.

Road Passes for Medical Practitioners.

Mr. MARJORIBANKS asked the Minister of Transport whether he would consider issuing to registered medical practitioners special road passes, or whether he would authorise the attachment of special signs, horns, or lights to the cars of registered medical practitioners, so that police officers on point duty should give them special facilities through traffic in cases of emergency.—Mr. HERBERT MORRISON replied: I would refer the hon. Member to the reply which I gave on this subject on Feb. 25th to Mr. Hore-Belisha.

[The question and reply referred to are as follows:—Mr. Hore-Belisha asked the Minister of Transport whether, in view of the urgent nature of calls made on doctors, he would consider allowing a distinctive sounding horn on their cars, as in the case of ambulances, so that the police in control of traffic would be enabled to afford them special facilities for proceeding on their way.—Mr. H. Morrison replied: Fire engines and ambulances are vehicles which are readily recognisable, and both the police and the general public do what they can to facilitate their expeditious passage when answering a summons. There is no distinction in appearance, however, between a doctor's car and an ordinary private car; and I should deprecate any attempt to establish a priority of right of way by the use of a distinctive type of motor horn or any other similar means, as such a course would be open to serious abuse.]

Mr. MARJORIBANKS: Is the right hon. gentleman not aware that this has become a matter of public controversy since then, and is he also aware that Canada has adopted this system, that it has worked well, and that I believe the terms for penalties in the case of improper use have also worked well, and will he look into the matter in view of Canadian experience?

Mr. MORRISON: I have carefully considered the matter, but the number of priorities which would have to be issued would be so large that I am afraid it would involve serious interference with the free flow of traffic.

Mr. MARJORIBANKS: Will the right hon. gentleman look into the Canadian experience and see how it has worked?

No further reply was given.

Indian University Students in Britain.

Commander OLIVER LOCKER-LAMPSON asked the Secretary for India how many Indian students are now in residence at English and Scottish universities and enjoying educational hospitality.—Mr. BENN replied: According to figures supplied by the institutions concerned, the total number of Indian students at present studying at universities, colleges, medical schools, and other educational institutions of similar standing in Great Britain is approximately 1740.

War Pensioners and Tuberculosis.

Mr. HORE-BELISHA asked the Minister of Pensions (1) the number of men in receipt of disability pensions in respect of tuberculosis during the years 1928, 1929, and 1930, respectively, who had had their pensions increased as a result of the findings of the medical board that their conditions had deteriorated, and the number of men during the same period who had had their pensions decreased as a result of the findings of the medical board that their condition had improved; and (2) the number of reviews during the years 1928, 1929, and 1930, respectively, by medical boards of cases where disability pensions had been granted in respect of tuberculosis; and the number of cases during the same period where the disability pension had been withdrawn on the ground that the effects of tuberculosis had passed, or by reason of the pensioners having died as a result of the disease.—Mr. F. O. ROBERTS replied: The records of the Ministry do not enable me to state precisely the number of disabled officers and men pensioned for tuberculosis whose cases have been reviewed in the years referred to and, consequently, I cannot state the number whose pensions have been increased or decreased. I understand, however, that normally in a majority of the cases the pension either remains the same or is increased, while the number of cases in which the pension has ceased to be drawn on the ground that the effects of war service have passed away, is in comparison negligible. The deaths of tuberculosis pensioners reported during each of the three years were in 1928, 1450; in 1929, 1400; and in 1930, 1050; but the number of these cases in which death was due to the disability cannot be stated.

Veterinary Medical Research.

Lieut.-Col. FREMANTLE asked the Minister of Agriculture when it was proposed that the scheme now being prepared for the development and coördination of veterinary medical research should be put into operation; and whether an opportunity would be given to the House to discuss it before the details were finally decided.—Dr. ADDISON replied: The scheme is still under consideration and I cannot yet say when it will be put into operation. The subject can, of course, be raised when the appropriate Vote is before the House.

Mental Defectives in England and Wales.

Mr. GORDON MACDONALD asked the Minister of Health the number of certifiable mental defectives in England and Wales for each of the five years ended Dec. 31st, 1930.—Miss LAWRENCE replied: Statistics are not available as regards the number of persons certifiable as mental defectives, but the number of persons detained under certificates under the Mental Deficiency Acts on Dec. 31st in each of the last five years is as follows: 1926, 20,091; 1927, 21,598; 1928, 23,275; 1929, 25,076; 1930, 27,811.

Ingredients of Margarine.

Mr. MCELWEE asked the Minister of Health the names of the various ingredients used in the manufacture of margarine in Great Britain during 1930; and the principal sources from which they were obtained.—Miss LAWRENCE (Parliamentary Secretary to the Ministry of Health) replied: My right hon. friend is not able to give information specifically relating to the year 1930, but he is advised that the principal ingredients normally used in the manufacture of margarine are various vegetable oils and fats, such as rachis, coconut, palm kernel, soya bean, and cotton seed oils, and rendered animal fats such as oleo oil and hardened marine animal fats. The ingredients are obtained from various sources, home and foreign, including West Africa and Manchuria for vegetable oils, and South America for oleo.

Inspection of Private Schools.

Mr. MARJORIBANKS asked the Prime Minister whether he would consider the introduction of legislation to make proprietary private schools subject to inspection by the Board of Education and the Ministry of Health. Mr. MORGAN JONES (Parliamentary Secretary to the Ministry of Education) replied: My right hon. friend regards this as a matter for consideration when a report has been received from the departmental committee which was appointed by his predecessor last December to consider the position of all schools not in receipt of grant from public funds.

TUESDAY, MAY 12TH.

Women and National Health Insurance.

Mr. MORLEY asked the Minister of Health the number of women contributing to health insurance in this country in the years 1920 to 1921 and 1930 to 1931.—Mr. GREENWOOD replied: The number of women in Great Britain who were contributing for national health insurance purposes on Dec. 31st, 1920, was 5,064,000, and the corresponding figure on Dec. 31st, 1930, was 5,750,000.

Licensing in Scotland.

Mr. DUNCAN MILLAR asked the Secretary for Scotland when the Report of the Royal Commission on Licensing in Scotland would be issued.—Mr. WESTWOOD replied: I understand that the Commission hope to be able to make their report towards the end of this month, and arrangements will be made for its presentation and issue as soon as possible thereafter.

MEDICAL NEWS

University of Cambridge.

On May 9th the following degrees were conferred :—

M.D.—H. K. Goadby, Alexander Sandison, S. E. F. Gooding, and W. G. S. Brown.
M.Chir.—R. W. Butler.
B.Chir.—V. H. Ellis.

At a congregation on May 9th approval was given to reports on the establishment of a university lectureship in pharmacology and a university demonstratorship in the department of experimental psychology.

Royal College of Physicians of London.

On May 7th diplomas of L.R.C.P. were conferred upon 58 candidates (50 men and 8 women) who have passed the final Examination of the Conjoint Board and have complied with the by-laws of the College. These candidates had not completed their examinations in time for the College meeting on April 30th.

The following are the names and medical schools of the successful candidates :—

Margaret Abernethy, Royal Free ; R. E. Adam, Oxford and St. Thomas's ; Margaret H. Banks, Royal Free ; G. Barwell, Guy's ; J. S. Batchelor, New Zealand and Guy's ; R. J. V. Battle, Camb. and St. Thomas's ; Jessie G. Belilios, King's Coll. ; L. P. B. Chamberlain, Univ. Coll. and St. Bart.'s ; S. Cimmering, St. Bart.'s ; G. T. Cook, Camb. and King's Coll. ; K. M. Cooper, Royal Free ; G. J. Cunningham, St. Bart.'s ; L. E. A. Dearberg, Guy's ; W. De Lacey, Cardiff and London ; S. D. De Silva, L.M.S., Ceylon and Univ. Coll. ; N. B. Fadia, M.B., Bombay ; L. Farris, Liverpool and Charing Cross ; A. C. Frazer, St. Mary's ; W. G. Glassco, McGill and St. Mary's ; T. N. Gledhill, Oxford and Westminster ; H. Goldenberg, London ; D. G. Gower, Camb. and Westminster ; L. J. Hackett, St. Bart.'s ; Kathleen M. L. Hall, Royal Free ; H. T. Halper, St. Bart.'s ; M. Halperine, M.D., Paris and London ; A. C. Hauptfleisch, Cape and Guy's ; N. Heath, Oxford and Westminster ; G. Holroyd, Leeds and Guy's ; J. H. Hunt, Oxford and St. Bart.'s ; A. L. Jacobs, Oxford and Univ. Coll. ; C. D. P. Jones, Univ. Coll. ; M. S. Khan, Middlesex ; Janet Y. Laidlaw, Royal Free ; M. M. Landau, Middlesex ; R. C. Langford, Camb. and St. Thomas's ; G. F. Lashmore and A. J. D. Lewis, Guy's ; H. M. List, St. Bart.'s ; A. W. Littlewood, St. Mary's ; B. F. Longbotham, Camb. and London ; A. P. McEldowney, Camb. and St. Thomas's ; G. B. Malone-Lee, Oxford and St. Thomas's ; T. P. Mulcahy, Camb. and St. Thomas's ; B. S. Nanjiani, M.B., Bombay ; J. L. Parker, Camb. and St. Thomas's ; J. Ross, L.M.S.S.A., Toronto and Charing Cross ; Eileen M. M. Shaw, L.M.S.S.A., Royal Free and Westminster ; H. J. Shorvon, St. Thomas's ; M. Shorvon, King's Coll. ; E. G. Sibley, Middlesex ; J. H. Spence, Camb. and St. Thomas's ; A. L. Thomas, L.M.S.S.A., Cardiff and Guy's ; J. C. Wharton, Guy's ; Eva M. M. Willett, Westminster ; G. M. Willey, King's Coll. ; O. S. M. Williams, Oxford and Westminster ; W. G. Wright, King's Coll.

Royal College of Physicians of Edinburgh.

A quarterly meeting of the College was held on May 5th with Sir Norman Walker, the President, in the chair. Dr. Thomas Ferguson (Falkirk), Dr. Ronald Douglas Mackenzie (Edinburgh), Dr. Ernest Watt (Edinburgh), and Dr. George Matheson Cullen (Edinburgh) were introduced and took their seats as Fellows of the College. Dr. George Hector Percival (Edinburgh), Dr. David Lees (Edinburgh), Dr. Margaret Black Martin (Edinburgh), and Dr. Joseph Ryland Whitaker (Edinburgh) were elected to the Fellowship. Dr. Robert Thin was re-elected a representative of the College on the Conjoint Committee of management of the triple qualification. The Freeland Barbour Fellowship was awarded to Robert Henry Slater, Ph.D.

Scottish Conjoint Examining Board.

Of 81 candidates recently entered for the final examination of the Board, the following were successful and have been admitted licentiates of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow.

Loutfi Ahmed, P. M. Ballantyne, Paul Barron, D. A. Black J. S. F. Botha, John Boyle, Robert Bulman, Parshotam Dass, A. C. Devaraj, Amin Fazary, J. T. M. Fenton-Fyffe, Klass Graftdyk, D. M. I. Harmar, M. D. D. Jayawardana, S. G. A. Malek, R. E. Mullarky, Alexandrina M. M. Parker, W. R. Parker, G. S. Robertson, Joseph Rosenberg, George Rosenbleitt, Manmanathanatt Sarkar, D. W. Semmens, Ahmed Shaheen, J. A. Shehid, J. E. Sprunt, Helen V. Tindal, H. F. Tindal, A. W. Turnbull, Mary T. Wilson, and W. R. Young.

D.P.H.—The following candidates have been admitted Diplomates in Public Health :—

N. W. Ahin, Helena E. Barrett, A. D. Gorman, B. N. Khan, Mary L. Liston, and F. F. Main.

The Cancer Hospital.

At the annual general meeting of this hospital, held on May 1st, Mr. R. H. Jocelyn Swan spoke on the progress made in the treatment of cancer. He said that radium certainly holds a place in the treatment of cancer, but that its field of usefulness is being narrowed down to certain forms of cancer in particular organs. In his view the attack upon a cancer by burying multiple needles containing radium into it held out more promise than the external application or even that form of treatment supplied by the bomb, and work in this hospital had been carried out on these lines. There was no doubt that primary growths of the tongue and in the uterus might in a proportion of cases be made to disappear with radium, but to acclaim this as a cure was misleading and showed ignorance of the disease. Unfortunately radium did not seem to have such an effect upon the secondary glandular spread, so that in many cases in which the primary growth had been cleared away the secondary growths still continued. A number of cases of cancer of the breast and other organs had been treated with radium with encouraging results, but further time must elapse before they could speak of cures. In many cases relief of suffering was obtained by radium. Mr. Swan did not wish to appear pessimistic by any means : in fact, he was still optimistic, but he thought the general public should realise that radium was not the certain cure for cancer that they had been led to believe it was by premature reports both in the medical and in the lay press. At present, except perhaps as regards the tongue, the uterus, and, possibly, the breast, they must rely on the orthodox wide-spread removal of the diseased organ together with its lymphatic areas of spread, rather than be too far fascinated by a form of treatment which might lead to disappointment and to sacrifice of human life. He was of opinion that in radium we had a valuable adjunct to our methods of treatment, but it was a dangerous weapon, and should be in the hands of those alone who know not only how to use it, but when to use it, and to use it with minute care and precision. Another recent innovation in the hospital was being carried out by Dr. S. Wyard. By means of a special instrument [1] a series of photographs of the interior of the stomach could be obtained with one flash exposure. From the enlargement of these small photographs they hoped to be able to detect those early cancers in the stomach which give rise to symptoms often few or deceptive until the disease has passed the range of operative removal. The new wing of the hospital was approaching completion, and the increased number of beds for free patients, and those allotted to patients who could afford something towards their maintenance and treatment, would, said Mr. Swan, add considerably to their work.

University of London.

At a meeting of the University Court on May 7th it was reported that the late Mr. Clifford B. Edgar had bequeathed £4000 to the London School of Hygiene and Tropical Medicine for the promotion of research. For the further extension of the London School of Economics and Political Science the Rockefeller Foundation has offered a sum up to about £146,000.

Lebanon Hospital for Mental Diseases.

The thirty-second annual meeting of this hospital will be held at 3.15 P.M. on Tuesday, May 19th, at Friends House, Euston-road, London, N.W., with the Rt. Rev. Herbert Bury, Assistant Bishop of London, in the chair. Among the speakers will be Dr. E. W. G. Masterman, chairman of the General Committee, and Dr. J. Tylor Fox. The secretary's address is 55, Wellington-road, N.W. 8.

University of London Medical Graduates Society.

The annual meeting and dinner of this society was held at the Langham Hotel on May 11th. Sir John Rose Bradford, the President, presided over a gathering which included the Vice-Chancellor (Rev. Scott Lidgett), the President of the Royal College of Physicians of London (Lord Dawson), and the President of the Royal College of Surgeons of England (Lord Moynihan), both medical graduates of the University. The next dinner of the society will be held on Nov. 13th at Bristol.

Medical Tour in Central Europe.

A tour is being arranged for medical men in Central Europe from August 24th to Sept. 11th. The party will arrive at Linz on August 26th, and sail down the Danube to Vienna, where two full days will be spent. Four days will then be devoted to Pistany (Czechoslovakia) and its neighbourhood, after which there will be a further four days at Luhacovice. At each of these centres the bath establishments and other medical institutions will be shown. The tour will continue via Prague and Nuremberg. Particulars and terms may be had from the Pistany Spa Representation, 38, Sackville-street, London, W. 1.

[1] See THE LANCET, Feb. 14th, p. 371.

Socialist Medical Association.

The first annual general meeting of this association was held at Conway Hall, Red Lion-square, London, on May 10th, when the President, Mr. Somerville Hastings, M.P., gave the address which appears on p. 1115. In the ensuing discussion Dr. Alfred Salter, M.P., said that there would be an enormous amount of prejudice to be overcome before the family doctor idea was swept away. The British public would resent dictation by a social directorate. The executive committee reported that since the inception of the association in October last a subcommittee had been collecting evidence in favour of a detailed policy for the establishment of a free socialised medical service. Another subcommittee had been organising lectures for members of the trades-union, labour, socialist, and coöperative movements. Representatives of the association were to attend the first International Conference of Socialist Physicians to be held at Carlsbad this month. It was agreed that the association should seek affiliation to the National Labour Party. Resolutions were passed opposing paying wards in, and charges being made at, municipal hospitals for infectious diseases, including tuberculosis, expressing the opinion that municipal and hospital treatment should at once be dissociated from the poor-law, and pressing for the establishment of nursing in the Ministry of Health and the raising of the income limit of national health insurance to £500 a year. The following were elected officers for the coming year :—

President, Mr. Somerville Hastings, M.P. Treasurer, Dr. Alfred Welply. Secretary, Dr. C. W. Brook, L.C.C. Trustees, Dr. Hector Munro, and Dr. V. H. Rutherford. Executive Committee, Dr. Bensusan Butt, Dr. Frank Bushnell, Dr. S. W. Jeger, L.C.C., Dr. Caroline Maule, Dr. A. V. R. Menon, Dr. J. Grant Morrin, Dr. D. P. Murray, Miss Esther Rickards, M.S., L.C.C., Dr. M. Rose, Dr. Alfred Salter, M.P., Dr. John Powell-Evans (London branch secretary), Mr. F. Lawson Dodd (dentists' representative), Miss Gladys Le Geyt (nurses' representative), and Mr. Roy Dennison (students' representative).

The meeting concluded with an address by Prof. Major Greenwood, F.R.S., on the Municipal Hospitals, the University, and Medical Research in London.

Scientists' Tour in Russia.

Accounts of this tour were given in THE LANCET of Jan. 31st and April 18th (p. 887), and owing to the large demand for membership of the first party, the lists for which closed on April 30th, a second party will now leave London Bridge by Soviet ship for Leningrad on August 8th. The return fare will be £18 inclusive. The party will spend a total of 16 days in Russia—three days in Leningrad, five days in Moscow, half a day in Nizhni-Novgorod, and four days on the river down to Stalingrad (if desired). The cost per day will be £1 per head inclusive, the balance of the days being spent in travelling. Meetings will be arranged which members of the party will be invited to address, and there will be excursions with guides to scientific institutions of interest to the members. The Soviet authorities are prepared to give this tour second category accommodation at third category prices. The accommodation will be comfortable, and persons will sleep three or four in a room. Those wishing to sleep two in a room will pay 5s. per day extra. The party will consist of 25 persons. If there is a large demand for places the list might be extended. The latest date for receiving applications is June 15th. Inquiries should be addressed to the Secretary, Society for Cultural Relations, 1, Montague-street, London, W.C. 1.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, May 18th.—8 P.M., ODONTOLOGY. Annual General Meeting at the Royal College of Surgeons, Lincoln's Inn-fields, London, W.C. Election of Officers and Council. Casual Communications: Dr. E. W. Fish: An International Nomenclature of the So-called Pyorrhœa Group of Diseases. Demonstration: Sir Frank Colyer will show upon the screen some of the older dental instruments in the Museum.
TUESDAY.—4.30 P.M., SPECIAL GENERAL MEETING OF FELLOWS. Abolition of the Sections of Balneology and Climatology, and Electro-Therapeutics. Creation of two new Sections of Physical Medicine and Radiology.—5 P.M., GENERAL MEETING OF FELLOWS. Ballot for Fellowship.
THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Election of Officers and Council. Cases: Dr. H. W. Barber: Extensive Atrophic Lichen Planus. Dr. H. W. Barber and Dr. L. Forman: Sycosis Treated with Intradermal Vaccine. Mr. Percival P. Cole: Rhinoplasty after Lupus of the Nose. An apparatus to maintain Wolff grafts, or radium applicators in position on the face. Dr. W. N. Goldsmith: Case for Diagnosis: ? Lichen Planus Atrophicus. Specimen of Mycosis Fungoides of Internal Organs. Other cases will be shown.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, W.
THURSDAY, May 21st.—8.15 P.M. (preceded by a demonstration at 7.45 P.M.), Dr. G. W. M. Findlay, Dr. J. L. Dunlop, and Major H. C. Brown: Observations on Epidemic Catarrhal Jaundice.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.
THURSDAY, May 21st.—2.30 P.M. (at B.M.A. House, Tavistock-square, W.C.), Quarterly Meeting. Papers. Dr. Norman Phillips: Mental Disorders associated with Pernicious Anæmia. Dr. W. F. Samuels: Anti-malarial Work at Central Mental Hospital, Tanjong, Federated Malay States. Dr. Geoffrey Shera: Terminal Uræmia, with Notes on the Prevalence of Renal Disease among the Insane.

BIOCHEMICAL SOCIETY.
SATURDAY, May 16th.—2.30 P.M. (in Department of Biochemistry, Oxford), Communications and Demonstration.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, May 18th, and following WEDNESDAY.—5 P.M., Colonel Robert McCarrison: Experimental Research at the Pasteur Institute, India.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, May 18th to SATURDAY, May 23rd.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. M.R.C.P. Special evening lectures at 8.30 P.M. Tues., Dr. L. J. Witts: Jaundice. Fri., Dr. W. J. Adie: Diseases of the Nervous System, I. ROYAL NORTHERN HOSPITAL, Holloway-road, N. Wed., 2 P.M., Demonstration in the Out-patient Department by Dr. Calvert. No fee.—QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, E. Fri., 10 A.M., Demonstration of General Cases by Mr. Coyte. No fee.—ROYAL EYE HOSPITAL, Southwark, S.E. Afternoon course. Demonstration daily.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. Afternoon and evening demonstrations in skin diseases. Lectures four days a week at 5 P.M.—CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E. All-day course in Diseases of the Heart and Lungs. Lectures and demonstrations.—Further particulars from the Fellowship of Medicine.

NATIONAL HOSPITAL, Queen-square, London, W.C.
MONDAY, May 18th.—12 noon, Dr. Greenfield: The Cerebro-spinal Fluid. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Hinds Howell: Subacute, Combined Degeneration of the Cord.
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Critchley: Cerebral Vascular Disease (2).
WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Critchley: Cerebral Vascular Disease (3).
FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Birth Palsies.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, May 18th.—10 A.M., Gynæcological Ward Visit, Genito-Urinary Operations, Skin Department. 11 A.M., Surgical Ward Visit. 2 P.M., Medical, Surgical, Eye and Gynæcological Out-patients, Operations. Surgical Ward Visit.
TUESDAY.—Operations. 10 A.M., Medical Ward Visit, Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Clinical Demonstration. 2 P.M., Medical, Surgical, Throat Out-patients, Operations. Medical Ward Visit.
WEDNESDAY.—Medical Ward Visit, Childrens' Medical Out-patients. 2 P.M., Medical, Surgical and Eye Out-patients, Gynæcological Operations. 4.45 P.M., Venereal Diseases.
THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Treatment of Fractures. 2 P.M., Medical, Surgical, and Eye Out-patients, Genito-Urinary Department. Operations.
FRIDAY.—10 A.M., Medical Ward Visit, Skin and Dental Departments. 12 noon, Medical Lecture. 2 P.M., Medical, Surgical, and Throat Out-patients. Operations.
SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Ward Visit, Surgical and Childrens' Medical Out-patients.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.
THURSDAY, May 21st.—3 P.M., Visit to Clinic for Rheumatism, Peto-place, Marylebone-road, N.W. Dr. B. S. Nisse.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel-street, Gower-street, W.C.
WEDNESDAY, May 20th.—Dr. Bernard Hart: Mental Hygiene.
FRIDAY.—Prof. E. L. Collis: Industrial Hygiene: Respiratory Diseases.

CITY OF LONDON MATERNITY HOSPITAL, City-road, E.C.
THURSDAY, May 21st.—5 P.M., Mr. R. Christie-Brown: Some Problems in Midwifery.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.
TUESDAY, May 19th.—5 P.M., Prof. J. Mellanby: Recent Work on Blood Coagulation.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, May 19th.—3.15 P.M., Mr. Kenneth M. Walker: Intravenous Pyelography as an Aid to Diagnosis.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
MONDAY, May 18th.—5 P.M., Dr. H. Haldin-Davis: Drug Eruptions.
TUESDAY.—5 P.M., Dr. J. E. M. Wigley: Napkin Area Eruptions.
THURSDAY.—5 P.M., Dr. I. Muende: Pathological Demonstration.

CHADWICK PUBLIC LECTURES.
MONDAY, May 18th.—8 P.M. (in the Institute of Mechanical Engineers, Storey's Gate, Westminster), Prof. E. L. Collis: The Coal Miner: His Health and Occupational Diseases.

UNIVERSITY OF BIRMINGHAM.
TUESDAY, May 19th.—3.30 P.M. (at the General Hospital), Dr. A. P. Thomson: Simpler Methods in the Treatment of Diabetes.
WEDNESDAY.—4 P.M. (in the Large Theatre of the Medical Faculty Buildings, Edmund-street), Sir Hubert Bond: Some Correlations between General and Psychological Medicine. (Second of five William Withering Memorial Lectures.)
THURSDAY.—4 P.M. (in the Medical Lecture Theatre, Edmund-street Buildings), Prof. W. Blair Bell: Maternal Disablement. (First Ingleby Lecture.)
FRIDAY (at the Queen's Hospital).—3.30 P.M., Mr. Bertram Lloyd: Demonstrations of Surgical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, May 19th.—4.15 P.M., Mr. G. Jefferson: Treatment of Intractable Pain.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street, Manchester.
WEDNESDAY, May 20th.—4.30 P.M., Mr. F. H. Scotson: Treatment of Varicose Veins and Ulcers (Demonstration).

Appointments

BASKIN, J. L., M.D., L.R.C.P., L.R.C.S., has been approved by the Board of Control for the purpose of making recommendations under Sections I. (3) and V. (3) of the Mental Treatment Act, 1930.

HILL, HORACE, M.B., B.S. Lond., M.R.C.P. Lond., has been approved by Board of Control under Mental Treatment Act.

Vacancies

For further information refer to the advertisement columns.

Aberdeen Royal Infirmary.—Hon. M.O. for Diseases of the Skin Dept.
Albert Dock Hospital, Connaught-road, E.—Res. M.O. At rate of £100.
Bath and Wessex Children's Orthopædic Hospital, Combe Park.—H.S. At rate of £120.
Birmingham Children's Hospital.—Res. Surg. O. £175. Also H.S. At rate of £75.
Blackburn County Borough.—Asst. M.O.H. £600.
Blackburn Royal Infirmary.—Fourth H.S. £150.
Bolton Infirmary and Dispensary.—Asst. Res. Surg. O. £200. Also two H.S.'s. Each at £150.
Bootle General Hospital, Lancs.—2 H.S.'s Each at rate of £150.
Brighton, Royal Sussex County Hospital.—Hon. Med. Reg., Surg. Reg., Hon. Clin. Asst. to Ear, Nose and Throat Dept. Clin. Asst. Also Cas. H.S. £120.
British Homœopathic Association, 43, Russell-square, W.C.—Grant £100.
Burton-on-Trent, Bretby Hall, Orthopædic Hospital.—Locum Res. Asst. M.O. At rate of £350.
Canterbury, Kent and Canterbury Hospital.—H.P. and H.S. Each at rate of £125.
Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100.
Chesterfield and North Derbyshire Royal Hospital.—Cas. O. and H.S. At rate of £200 and £150 respectively.
China, Mission Hospitals.—5 Doctors.
Cyprus Mines Corporation.—Surgeon-Physician. £480–£500.
Derby, Derbyshire Hospital for Sick Children.—Res. H.S. and Res. H.P. At rate of £150 and £130 respectively.
Derby, Derbyshire Royal Infirmary.—Cas. O. £150.
Doncaster Royal Infirmary.—H.S. At rate of £175.
Dreadnought Hospital, Greenwich.—H.P. and H.S. Each at rate of £110.
Durham County Hospital.—H.S. £150.
East Ham Memorial Hospital, Shrewsbury-road, E.—Res. M.O. At rate of £200.
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P., Obstet. Asst. 3 H.S.'s. All at rate of £50. Also Ophth. Surg.
Evelina Hospital for Children, Southwark, S.E.—H.P. At rate of £120.
Gloucester, Gloucestershire Royal Infirmary, &c.—2nd H.S. At rate of £120.
Great Yarmouth General Hospital.—H.S. £140.
Grosvenor Hospital for Women, Vincent-square, S.W.—Gynæcologist.
Hong-Kong University, Faculty of Medicine.—Professor of Pathology. £1000.
Hospital for Sick Children, Great Ormond-street, W.C.—Ophth. Surgeon.
Hove, Lady Chichester Hospital.—H.P. At rate of £100. Also Jun. H.S. £50.
Hull Royal Infirmary.—Third H.S. At rate of £150.
Ilford, King George Hospital.—Two H.S.'s. Each at rate of £100.
Institute of Ray Therapy, 152-154, Camden-road, N.W.—Res. M.O. At rate of £150.
Kettering U.D.C.—Part-time M.O. for Antenatal Clinic. £1 11s. 6d. per session.
Kidderminster and District General Hospital.—H.S. £150.
King Edward Memorial Hospital, Ealing, W.—Consulting P., Consulting Dental S., Asst. Consulting S., and Consulting Anæsthetist. All honorary.
Kingston-upon-Hull, Beverley-road Institution.—Asst. M.O. £300.
Leeds Education Committee.—Asst. School M.O. £500.
Leeds Hospital for Women.—H.S. At rate of £50.
L.C.C. Hospital Laboratory Service.—Pathologist. £1100.
Liverpool Stanley Hospital.—H.P. and H.S. Each at rate of £100.
London Hospital, E.—1st Med. Asst. and Reg. £300.
Macclesfield General Infirmary.—Second H.S. At rate of £150.
Manchester, Abergele Sanatorium.—Asst. Med. Supt. £600.
Manchester, Ancoats Hospital.—Orthopædic H.S. At rate of £100.
Manchester Babies Hospital, Burnage-lane, Levenshulme.—Sen. Res. M.O. and Jun. Res. M.O. At rate of £125 and £50 respectively.
Manchester Royal Infirmary.—H.S. for Central Branch, Roby-street. At rate of £100.
Miller General Hospital, Greenwich-road, S.E.—H.P. and H.S. Each at rate of £125. Also Out-patient Officer. At rate of £150.
Newcastle General Hospital, Newcastle-upon-Tyne.—Asst. Phys. and Asst. Surg. Each £500. Also Med. Reg. and Surg. Reg. Each £250.
Newcastle-upon-Tyne, Hospital for Sick Children.—H.S. At rate of £100.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Jun. Surg. Reg. £150.
North Middlesex Hospital, Edmonton, N.—Asst. M.O. £400.
Norwich, Norfolk and Norwich Hospital.—H.S. £120.
Oldham Royal Infirmary.—H.P. and Cas. O. Each at rate of £175.
Plymouth, South Devon and East Cornwall Hospital.—H.P. At rate of £120.
Pontefract General Infirmary.—R.M.O. £200–£300.
Poplar Hospital for Accidents, East India Dock-road, E.—Sen. Res. O. £200.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Two Res. Anæsthetists. Also Asst. Res. M.O. At rate of £100 and £80 respectively.
Queen's Hospital for Children, Hackney-road, E.—H.P., H.S., and Cas. O. All at rate of £100.
Redhill, Surrey, Royal Earlswood Institution.—Jun. Asst. M.O. At rate of £250.
Rotherham Hospital.—H.P. £180. Cas. H.S. £150. Also Sen. H.S. £200.
Royal Eye Hospital, St. George's-circus, Southwark, S.E.—Asst. H.S. At rate of £100.
Royal Free Hospital and London (R.F.H.) School of Medicine for Women, W.C.—Res. Asst. Path. £150.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. At rate of £100.
St. Leonards-on-Sea, Buchanan Hospital.—Jun. H.S. At rate of £125.
St. Mary's Hospital, W.—2nd. Obstet. Surgeon for Out-Patients Dept. Also Res. Anæsthetist. At rate of £104–£150.
St. Thomas's Hospital, S.E.—Visiting Anæsthetist.
Salford City Infectious Diseases Hospital.—Jun. Asst. Res. M.O. £200.
Salvation Army Mothers' Hospital, Lower Clapton-road, Clapton, E.—Asst. Res. M.O. £80.
Samaritan Free Hospital for Women, Marylebone-road, N.W.—Hon. Surg. to Out-patients.
Sheffield Children's Hospital.—H.P. and Third Res. M.O. At rate of £100 and £80 respectively.
Stockport Infirmary.—H.P. £175.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. £150.
Taunton, Taunton and Somerset Hospital.—Two Jun. M.O.'s. Each at rate of £100.
Truro, Royal Cornwall Infirmary.—H.S. £170.
University College Hospital, Gower-street, W.C.—Radiological Registrar. £250.
Walsall County Borough.—Asst. M.O.H. £500.
Warwick County Mental Hospital, Hatton.—3rd. Asst. M.O. £400.
Weir Hospital, Grove-road, Balham, S.W.—Jun. Res. M.O. £150.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Jun. H.S. At rate of £100.
West Ham County Borough Education Committee.—Two Asst. School M.O.'s. Each £500.
Worcester General Infirmary.—Jun. H.S. At rate of £120
Wrexham and East Denbighshire War Memorial Hospital.—3 Res. H.S.'s. Each at rate of £150.

BATH MINERAL WATER HOSPITAL.—Last year the in-patients numbered 1353 who stayed on the average 39 days, and cost 4s. 5*d*. each per day. The church collections of the 12 months produced only £13.

NOTES, COMMENTS, AND ABSTRACTS

THE MEDICAL SERVICE OF THE FUTURE.*

BY SOMERVILLE HASTINGS, M.S. LOND., F.R.C.S. ENG.,
MEMBER OF PARLIAMENT FOR READING.

IT is the privilege of a new organisation to see visions and to dream dreams, but in looking into the future we must be strictly practical. We must consider what is possible as well as what is desirable, and we must be sure that we are really getting good value for what is spent on the health needs of the populace. Only when we have a clear conception of our ultimate object can we begin what is perhaps really the most difficult of tasks—namely, deciding how much of the present health administration is worthy of preservation and what steps must be taken and their order, to convert the present into the ideal.

Certain Basic Principles.

In trying to work out in some detail the medical service of the future, there are certain principles that have to be kept constantly in mind.

A PREVENTIVE SERVICE.

The medical service of the future will have much more to do with the prevention of disease than has the medical service of the present. To-day we divide doctors into those that prevent and those that treat disease, and the latter outnumber the former by perhaps ten to one. Of course, I shall be reminded that by curing one disease you prevent others. This is, of course, true, but what is necessary is that *every* doctor shall have his mind directed into preventive channels and that this shall not be left entirely to a chosen few. Unfortunately, at the present time preventive medicine takes but a very small place in the curriculum of the medical student, and the laws of health for adults and children are hardly taught at all. The reason is, of course, abundantly clear. Medical students are taught to become efficient tradesmen, and for the ordinary practitioner the commercial value of a knowledge of preventive medicine is exceedingly small. No one pays his doctor to keep him fit, and very few people except the mothers of young children inquire of their doctors concerning the laws of health. There is so much diagnosis and treatment that has to be learned for the qualifying examinations that the preventive side is largely neglected. All this will have to be changed. One of the chief concerns of every doctor will have to be the prevention of disease. It must be the business of the family doctor to keep his patients well and to report anything he may notice amiss with his patients' environment at home or at work to the appropriate quarter. There must be much more health propaganda by poster, lecture, and instruction in the school. Moreover, persons must be encouraged to come to their doctors for periodic medical examinations, even when they seem to be quite well. Only in this way shall we as doctors learn to recognise the earliest beginnings of disease. I am convinced that in this direction there is a possibility of an increase in knowledge such as we as yet have hardly dreamed of.

NO ECONOMIC BARRIER.

One reason, at any rate, why people so rarely come to their doctor for a periodic examination or for information concerning the laws of health is that this costs money. There must be no economic barrier between the doctor and his patient. Efficient treatment depends on the earliest recognition of disease. The question of expense must not, therefore, be allowed to enter in at all, and rich and poor alike must be encouraged to take advantage of the services of the doctor directly they feel they need it. The present economic dependence of the doctor on his patient is undesirable in many ways. It may prevent the doctor from giving wholesome but unpleasant advice; it may prevent his refusing to sign incapacity certificates; it may make him more concerned about mere externals than an intimate knowledge of the science of his profession. In suggesting this, I am not for one moment suggesting that members of my profession are consciously dishonest, but none of us can fail to be influenced to some extent by the conditions under which we work.

HOSPITALS ARE ESSENTIAL.

Another factor which has to be kept in mind is the increasing complexity of medical science. It needed a dozen different doctors, at least five nurses, and a good many technicians in connexion with bacteriology, X rays, and light treatment, each to do his bit in assisting in the recovery of His Majesty the King during his recent severe illness. Not only can the surgical specialist accomplish feats that were never imaged possible but a few years ago, but an increasing range of therapeutic substances are now at the service of the physician. Only comparatively recently has he had added to his list serums, vaccines, and gland extractives of many kinds. Further, many of the physical sciences have been roped in and made to yield their quota to the prevention and cure of disease. Consequently a decreasing number of diseased conditions can be successfully treated in the doctor's surgery or the patient's room. Hospitals, therefore, are no longer a refuge for the sick poor, but are a necessity for everyone.

THE TEAM MUST BE THE UNIT.

It follows, therefore, that no one doctor, however clever he may be, can know all there is to be known about the prevention, diagnosis, and treatment of all diseases. In the medical service of the future the team and not the individual doctor must be the unit. The medical profession has suffered enormously in the past from "insulation." The doctor who works alone in competition with and opposition to other doctors is very liable to degenerate professionally. This is not alone because, if a busy man, he has little time for study, but also and perhaps largely because of the conditions of his work. He has earned the confidence and respect of his patients who rightly regard his word as law. They look upon him almost as a little tin god and it is all too easy for him to regard himself in the same favourable light. He knows little or nothing of what other doctors are doing and, therefore, fails to realise his own insufficiency. Everything, therefore, that brings doctors together to talk over their cases, as they are sure to do, is to be encouraged. The doctor is by nature a gregarious animal who gets on well with his colleagues, and the experience of hospitals shows that if economic competition is eliminated, cooperation is easy and natural. It is only right to say that the profession generally is realising these facts more and more, and partnerships are coming into being in many places which permit of specialisation to an increasing degree.

BUT THE GENERAL PRACTITIONER IS ESSENTIAL.

It must not be imagined, however, that any doubt can exist as to the essential value of the general practitioner. I look upon the general practitioner as an essential part of the equipment of every family, whether rich or poor, to serve as guide, philosopher, and friend, as registrar of events of medical importance, and as diagnostician and liaison officer. Beyond question, such is the complexity of medical science, an ever-increasing amount of treatment will have to be undertaken by specialists, and a good deal of it

* Presidential Address to the Socialist Medical Association, May 10th, 1931.

within the walls of a hospital or similar institution. But the general practitioner whose duty it will always be to make a diagnosis and select the type of specialist as well as to treat a good many cases himself, must always be the most important link in the medical chain.

FREE CHOICE OF DOCTOR.

It is important not to under-estimate the psychological value of confidence. It is necessary to remember, however, that an institution or service can command confidence as much as an individual doctor, as is shown by the readiness of patients to submit themselves to operation in certain hospitals that they trust, although they may not know even so much as the name of any one member of the staff. Accordingly, it is probably in the interest of the patient to select his own practitioner. As free a choice of doctor is possible under a State service as under the present. Unless a practitioner is permitted to become overworked and, therefore, inefficient, it is impossible for him to deal with more than a certain number of patients, and this applies equally whether he is in private practice or a whole time State official.

THERE MUST BE PROFESSIONAL FREEDOM.

One more point. If medicine is a science it must be progressive. The fact that in the past the main discoveries of medical science have been made by the specialist in hospital and not by the general practitioner, does not indicate that there exists an essentially different type of mind in the two types of practitioner. It indicates that the conditions of service—the atmosphere of coöperation rather than competition—of the specialists are more favourable. A greater output of research work as well as better work generally is to be expected from the State service practitioner working in full accord with his fellows. And because this is to be expected of him, he must be given freedom, freedom to adopt his own methods of treatment, freedom from too onerous discipline, freedom from too many clerical duties. A secretary can relieve him of a great deal of these last. Facilities must also be provided to make easy the passage from one branch of the service to another of those individuals who desire a change and show capacity for it. Moreover, while increasing specialisation is inevitable, it is essential to provide sufficient change of work so that the doctor does not become a mere machine.

The General Practitioner Service.

If the nation accepts the principle that within reason the best that medical science can give shall be at the service of every person needing it and willing to take advantage of it without pecuniary liability of any kind, then it follows as a first principle that the services of a general practitioner should be provided for every person and every family that makes application for it. I think some 3000 persons might reasonably be allotted to each doctor of the general practitioner service. These doctors would carry out their work in and from clinics which would, wherever possible, be attached to the medical centres of the district. In sparsely populated districts, two doctors working together might form a clinic. In more densely populated areas, four or five might unite, while in the more congested parts of cities, some eight or ten doctors might usefully work together. The doctors would see their patients in the clinics and the persons allotted to the clinics would be able to select the doctor of their choice, as long as his panel of 3000 was incomplete. The doctor would also visit in their homes those of his patients unable to attend the clinic. As far as possible a woman doctor should be one of the staff of each of the larger clinics. In addition, attached to all but the smallest clinics should be dispensers and nurses, and to the larger, a masseuse. There should also be effective clerical assistance for the doctors to help them in record keeping and routine work. Where the clinic is not attached to a medical centre a dentist might usefully visit it once or twice weekly.

The Medical Centre.

The admitted success of the large general hospital is to a very large extent due to its many different departments all working in close association under the same roof. Accordingly, it should be the object of the medical service of the future to bring together in the closest possible coöperation all the several spheres of clinical activity. Where a hospital, large or small, exists, the medical centre should be attached to this. In the medical centre the doctors of the general practitioner service should have their consulting rooms. In it should be carried on the antenatal and the child welfare work. The tuberculosis, venereal, and school clinics should also be situated in the medical centres. It seems clear that the antenatal, tuberculosis, and venereal disease work would be best undertaken by specialists, but it would probably be found that the child welfare work and the examination of school-children would be best carried out by the same medical officers and possibly by members of the general practitioner service, who would have their panels proportionately reduced accordingly. In the large medical centres there would also be consulting out-patient departments for diseases of the skin, eye, ear, nose, and throat, &c. In the medical centres attached to the larger hospitals the X ray work would be done, but attached to these departments would be portable X ray installations which could be sent to the homes of patients when requisitioned by the general practitioner in charge. The other specialists attached to the hospital would also consult with the members of the general practitioner service in the patients' homes when needed.

The Maternity Service.

It will probably be best for most of the maternity work to be done by midwives and specialists, but it is essential that full advantage be taken of facilities for prenatal examination, and further, that a full report of everything of medical importance should be transmitted to the general practitioner responsible for the patient's welfare, who would keep a careful record of all events of medical importance in connexion with his patient.

The Dental Service.

As has already been suggested it will probably be useful for a dentist to attend at stated intervals at the outlying clinics. The greater part of the work of the dental service, should, however, be undertaken in the larger medical centres and hospitals. All available evidence points to the fact that from the health point of view, constant dental supervision does really pay. It must be admitted, however, that dental problems not infrequently arise, the solution of which are by no means easy. We may expect a considerable development of our road transport system in the near future, so that the connexions between towns and villages will probably be a great deal better than they are at present. I think, therefore, that most of the dental work of the future will be carried out in fully equipped dental clinics in the medical centres of large and small towns by full-time dentists assisted by dental mechanics and clerical assistants. In charge of each of these dental clinics should be a dentist of experience, preferably with a medical qualification. It should be the business of the other dentists, before undertaking a line of treatment in all but the simplest cases, to talk the matter over with this officer who would, in addition to his consulting duties, undertake the treatment of patients.

Hospitals.

All the experience of recent years seems to point to the conclusion that an increasing amount of sickness will be best treated under hospital conditions in the future. Therefore, the ideal medical service will need to have associated with it a complete and coördinated hospital system. Further, it would appear that with

the exception of tuberculosis, infectious fevers, and advanced mental disease, most illnesses suitable for hospital treatment are best dealt with in the wards of a general hospital, where the services of specialists in the various branches of medicine and surgery are readily obtainable and where any necessary pathological examinations can be carried out. All the hospitals should be closely linked together to form a single hospital system so that cases of special difficulty can be readily transferred from one to another as required, and for this and many other purposes an efficient ambulance service is essential. Each county should have its own general hospital or hospitals staffed by specialists; these would usually be situated in the county town. These hospitals would receive patients sent them direct by the general practitioners of the county, and in addition cases from the smaller hospitals of the county. The needs of medical education would probably be best met by attaching medical schools to the county hospitals in University and certain other towns. Most of the patients in these hospitals would be drawn from the county in which the hospital is situated and the cost of their treatment would be met by the county. But, in addition, it should be possible to transfer to these hospitals cases of special difficulty or interest from any part of the country. The cost of treatment of such patients would be paid for by the county from which they come. In addition to these county and university hospitals, there should be smaller hospitals especially for accidents and for chronic or less serious cases, dotted about the county. In charge of each of these hospitals should be a capable resident medical officer, but where members of the general practitioner service are living sufficiently near, they should be encouraged to continue the treatment of their patients after their admission to these hospitals. In addition, specialists attached to the county or university hospitals could be called upon to see patients in consultation in the wards of these hospitals, either when they attend to see out-patients there or when specially sent for. The close association between these local hospitals and the county hospital will make easy the transfer of cases to the latter when required.

There will also be required one or more large hospitals for infectious diseases in each county. It is a great mistake to provide one of these hospitals in every urban district, as treatment is better carried out by doctors with special experience. The centralisation of hospital treatment both for infectious and general diseases which has been recommended would undoubtedly result in some hardship to the friends of patients who had been removed to hospitals far from their homes. The resulting advantages from increased facilities for treatment would, however, more than compensate for this.

INDUSTRIAL HYGIENE.

In close and intimate touch with the general practitioner service should be that for industrial health. The doctors of the service should be responsible for conditions of industrial environment in factories and workshops. The service should be under the supervision of the local authorities rather than the Home Office. Time prevents even a passing reference to the nursing, ambulance, convalescent, pathological, and research services, all of which are essential to the national health.

Administration.

The most suitable unit for administration would seem to be the county including all county boroughs and boroughs contained therein. I am, however, well aware that the backward condition of some counties from the health point of view may make this seem by no means desirable at present. It would be possible, of course, to divide up large counties such as Yorkshire and Lancashire, and to unite smaller counties either completely or for special purposes. The health committee of the county would be therefore responsible for all health administration within its area. This would be financed by the general county rate assisted by grants in aid. The county medical officer of health would be in charge of the administrative scheme, and would supervise all the health services of the county including the medical inspection of schools and medical inspection and treatment of school-children. The county health committee would probably divide itself up into various subcommittees—e.g., preventive (sanitation, &c.), hospital, domiciliary (in charge of the general practitioner service), maternity, industrial health, child life, nursing, &c., each with a medical officer in charge. Further, some of these subcommittees and especially the first might find it useful to delegate to county boroughs, boroughs, and possibly to district councils many of these functions while retaining powers of general supervision.

In conclusion, I would like to point out that there is probably little or nothing that is original in this brief survey. Anything that may be useful in it is the result of repeated and prolonged discussion with members of the public health advisory committee of the Labour Party, of the National Medical Service Association, and of the body that is holding its first annual meeting to-day.

OBSERVATION CENTRES FOR CRIMINALS.

YEAR by year we are steadily approaching the position that was regarded as so fantastic when first imagined by Samuel Butler, where crime was treated as a disease and disease as a crime. Reluctant as the Supreme Court Bench is to admit psychopathology into its consideration, magistrates and prison officials are more and more seeking the help of the medical profession. This is particularly noticeable in connexion with juvenile offences, but those who are pressing for advance in this direction frankly admit that the juvenile is the thin edge of the wedge. They hope to convince public opinion of the necessity for the psychological examination of young offenders and ultimately to extend the same procedure to the adult. England is by no means in the van of this progress. In Vienna juvenile delinquents are sent to the children's clinic on an order of the court and the doctors alone decide their fate. In France there is a psychotherapeutic home where children convicted of the less serious offences can be committed for observation and treatment. Belgium is justly proud of that remarkable institution at Moll where offenders under 21 can be kept for three months for observation and report. They are allowed to earn money for the work they do and to spend it, and the observations made on them, at work, at play, and not least in the outlay of their earnings, guide the medical director in his recommendation as to their future destiny, whether it be probation, industrial school, or more severe punishment.

The Psychological Group of the Medical Women's Federation among other bodies is devoting considerable attention to the subject of criminal psychopathology and the part that the medical profession ought to play in the penal system of the country. At an informal conference arranged by this group held at Jordans last week-end the matter again came under review, and the chief point that emerged was the great need in this country for three observation centres like that at Moll. We understand that the Howard League for Penal Reform is anxious to see these centres established. At present the most that can be done is to remand a child at its own home or in a remand home for eight days. In either case the child is in an unnatural environment and observations can only be incomplete. The essential need is for some centre where the convicted child can be watched at work and play for a period of weeks or months in order that experts may give a considered opinion on the treatment most likely to turn a potential criminal into a valuable citizen. Manifestly the observation centre will lead on to the need for treatment homes; some of the inmates will be suitable for psychological treatment while pursuing

their ordinary avocations. Some kind of hostel where offenders on probation could live, under care, detached from a perhaps highly unsatisfactory home environment, yet continuing to earn their living, would be of the greatest possible value.

The question arises of who should provide these centres. Dr. Mary Barkas stated at the discussion that the Mental Treatment Act would empower local authorities to undertake this enterprise as part of their scheme for the mental health of the community. Others believe that it would not be satisfactory to leave an important national provision like this to local authorities; the failure of some of them to deal with their mental deficiency problem being quoted. The centres should most certainly not be part of the penal system of the country; Borstal is a part of this system, but industrial and reformatory schools and remand homes and all other provision for juvenile offenders come, as they rightly should, under the children's department of the Home Office. The observation homes would be part of the mechanism of the court to the extent that magistrates might use such powers of persuasion and force as they have at their command; otherwise the parent or guardian might be reluctant to allow the child to go to the centre. The psychopathology of crime—particularly juvenile crime—is a matter which doubly concerns the medical profession. It should make a strong appeal to every citizen, and it is time that there was sufficient pressure of public opinion to make a Children's Bill a first charge on any Home Secretary and not a measure that will get before the House only when there is nothing else in the way. The matter has also a peculiar appeal to doctors, in whose hands this delicate and difficult work of the future must almost inevitably be placed. Miss Cicely Craven, the Secretary of the Howard League, said very truly at the conference that the remand wards of our prisons are to the psychologist what the hospitals are to the physician and surgeon. They offer a collection of material—at present hardly realised—which could be investigated and treated, not only to the relief of the sufferers themselves, but also to the great good of the community as a whole.

AN AUTHORITATIVE LIST NEEDED.

To the Editor of THE LANCET.

SIR,—I note the reply in THE LANCET of April 18th (p. 896) to my question as to a list of persons properly qualified to offer certain assistance to practitioners. There seems to me no doubt as to the necessity of letting practitioners have the names of institutions or medical men to whom they may send patients for such service as reducing chronic dislocations, breaking down adhesions, resetting bones, manipulating joints, &c. But it should be required that the cases are treated *by someone on the Medical Register* who has experience in manipulative work. I think most of your readers will agree that this information should be supplied to medical men who require such assistance for their patients, in an authoritative list.

I am, Sir, yours faithfully,

May 6th, 1931. PHYSICIAN.

OUR OLDEST SUBSCRIBER.

To the Editor of THE LANCET.

SIR,—Under this heading Dr. James Gairdner in THE LANCET of March 14th says that he was born in 1846. He is by two years my senior. There are many medical men older than both of us I am sure, but my claim was that I was probably the oldest subscriber, as I have been a subscriber for 61 years without intermission.

I am, Sir, yours faithfully,

Bombay, April 16th, 1931. TEMULJI B. NARIMAN.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The Cavendish lecture will be given at the Kensington Town Hall at 8.15 P.M. on Friday, June 5th, by Prof. Julian Huxley, whose subject will be Development in Relation to Heredity and Evolution. The reception begins at 7.45 P.M. and the annual conversazione will follow the lecture.

Births, Marriages, and Deaths

BIRTHS.

COPE.—On May 3rd, at Welbeck-street, W., the wife of Dr. C. F. Cope, Pulborough, Sussex, of a daughter.

LISTER.—On May 1st, at Clifton, Bristol, the wife of William A. Lister, M.B., of a son.

LE MARQUAND.—On May 2nd, at Lima House, Reading, the wife of Dr. H. S. Le Marquand, of a daughter.

LOCKE.—On May 5th, at "Elmcroft," The Causeway, Potters Bar, to Dorothy Norah, the wife of Robert Gibbs Locke—a daughter.

MAITLAND-JONES.—On May 9th, 1931, at 31a, Weymouth-street, to Miriam, wife of Dr. A. G. Maitland-Jones—a son.

THWAITES.—On May 7th, the wife of Dr. W. G. Thwaites, Brighton, of a son.

MARRIAGES.

TASKER—BUCKMASTER.—On May 6th, at St. Paul's Church, Clifton, Bristol, Dr. Ronald Henry Tasker, to Dr. Dorothy E. B. Buckmaster, only daughter of Prof. and Mrs. Buckmaster, of Victoria-square, Clifton, Bristol.

DEATHS.

BAHADURJI.—On May 3rd, at Lexham-gardens, London, Dr. J. N. Bahadurji, M.R.C.S., L.R.C.P., aged 61 years.

BONTOR.—On May 8th, at a nursing home, Hampstead, Sidney Algernon Bontor, M.D., of Lancaster-road, Hampstead, late of Great Berkhamsted, Herts.

DUKE.—On May 4th, at Fernhurst, Sussex, Arthur Stanley Duke, L.R.C.P.

HOPKINS.—On May 9th, at Glenorchy, Parkstone, Dorset, Arthur Henry Hopkins, M.B., C.M.

JENKINS.—On May 9th, at Ravelagh-villas, Hove, Arthur William Jenkins, M.B., B.S., aged 60 years.

LATCHMORE.—On April 1st at Taupo, New Zealand, in his 61st year, Arthur Thomas Latchmore, M.R.C.S., L.R.C.P., sometime surgeon to the Princess Christian Hospital, Freetown.

MUGLISTON.—On May 7th, at Chy-an-Dreath, Newquay, Cornwall, after a long illness, Thomas Crichton Mugliston, M.R.C.S., L.R.C.P., R.N. (retired), formerly of Singapore and Penang, aged 77.

ODELL.—On May 5th, at Bengeo, Hertford, Robert Odell, M.D., F.R.C.S., aged 63 years.

SCHOFIELD.—On May 10th, at The Homestead, Grosvenor-road, Caversham, Gerald Schofield, M.D.

THOMAS.—On May 9th, at Greystones, Sea Front, Hayling Island, Cadogan Thomas, M.R.C.S., L.R.C.P. Lond., in his 69th year.

TONKS.—On May 4th, at Chesterfield, John Wilson Tonks, M.A., M.D., B.Chir. Camb., F.R.C.S. Eng., aged 43.

WEIR.—On May 4th, at Park-road, N.W., Henry Bright Weir, M.A., M.B., B.Chir. Camb.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

MEDICAL WOMEN'S FEDERATION: ANNUAL MEETING. The annual general meeting of the Medical Women's Federation was held on May 7th at the Apothecaries' Hall, where the members were welcomed by Lieut.-Colonel C. T. Samman. The President of the Federation, Miss L. Martindale, M.D., thanked the Master for his welcome and the Court of Apothecaries for their permission to hold the meeting in these historic surroundings. The hon. secretary, Miss M. Ramsay, F.R.C.S., in presenting the annual report, pointed out several events of interest to medical women. Aberdeen Infirmary had appointed its first woman ophthalmic surgeon; a woman regional medical officer had for the first time been appointed by the Minister of Health, and a woman had been made a Commissioner of Lunacy under the new Board of Control. 127 new members had joined the Federation this year. A discussion, opened by Miss G. Herzfeld, F.R.C.S. Edin., took place on the facilities at present available for medical women for gaining post-graduate experience as members of resident staffs in general hospitals. The conditions existing in this respect in different parts of Great Britain were described by local representatives. In the evening a large gathering of members and their friends were entertained in the Great Hall of the British Medical Association house at a reception and cabaret supper. Amongst the resolutions passed at the Council meeting held on March 8th were a request that all post-graduate courses and facilities for study in medicine, surgery, and special subjects shall be available to men and women alike; a request that the Government should make provision that on the Governing Body of the Post-graduate Hospital and Medical School one of the governors shall be a medical woman nominated by the Medical Women's Federation; and the expression of an opinion that in areas where two venereal disease officers are appointed one should be a woman. In regard to the last resolution, it was added that in areas where such a course is impracticable, medical officers of health should take every opportunity of having female maternity and child welfare officers trained in the diagnosis and treatment of venereal diseases. In the evening the President entertained the members of Council to dinner at the De Vere Hotel.